

**ENVIRONMENTAL ASSESSMENT FOR  
2-D SEISMIC EXPLORATION  
BY VERITAS DGC LAND, INC.,  
UINTAH COUNTY, UTAH**

**EA No. UT-080-2002-21**

**October 2002**



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## **1.0 INTRODUCTION**

### **1.1 PURPOSE AND NEED**

Veritas DGC Land, Inc. (Veritas) proposes to conduct two-dimensional (2-D) seismic exploration along 17 lines in Uintah County, Utah (Figure 1.1). The 17 seismic lines would total approximately 457 mi in length and would be shot beginning in 2002 as soon as appropriate permits are issued by the Vernal Field Office of the Bureau of Land Management (BLM) and continue in 2003.

The purpose and need for the Proposed Action is for Veritas to determine the potential for the occurrence of oil and gas resources in the underlying formations and to identify areas where drilling wells would have a higher probability of finding commercial quantities of hydrocarbons than if such seismic data were unavailable. The older vintage two-dimensional seismic data available in the Uinta Basin is outdated and antiquated and is not useable with today's technology thus reducing the risk of drilling non-producing wells. Such data is likely to result in fewer unproductive wells--"dry holes"--and their associated expense and surface disturbance. Most of the Federal lands within the project area are currently under valid oil and gas leases. Data from this project would be available to the entire oil and gas industry and would eliminate the need for each individual exploration company to do their own surveys.

BLM is considering approval of this proposed action because mineral exploration and production are allowed on public lands if in conformance with the terms and conditions of the land use plan. Minerals are identified as one of the principal or major uses of public lands as identified in Section 103 of the *Federal Land Policy and Management Act* (FLPMA).

### **1.2 INFORMATION ON RELATED PROGRAMS, PLANS, OR POLICIES**

This environmental assessment (EA) was prepared in accordance with the *National Environmental Policy Act of 1969* (NEPA) and in compliance with all applicable regulations and laws passed subsequently, including Council of Environmental Quality (CEQ) regulations (40 *Code of Federal Regulations* [C.F.R.], Parts 1500-1508), U.S. Department of the Interior (USDI) requirements (*Department Manual 516, Environmental Quality*), and guidelines listed in *BLM NEPA Handbook, H-1790-1* (BLM 1988).

Figure 1.1 Project Location.

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The proposed project is primarily within the Book Cliffs Resource Area, and policies for development and land use decisions are contained in the *Final Book Cliffs Resource Management Plan (BCRMP) Environmental Impact Statement* (BLM 1984). The alternatives would conform with the BCRMP because seismic exploration is a necessary part of gas and oil development, and the BCRMP states that gas and oil resources would be developed on lands deemed suitable within the BCRMP for that use under a development scenario that gives adequate protection to the environment. One of the proposed seismic lines (UU-05) would be partially within the Diamond Mountain Resource Area (see Figure 1.1). The *Final Diamond Mountain Resource Area Resource Management Plan and Environmental Impact Statement* (BLM 1993) authorize geophysical exploration on BLM surface by a bonded geophysical operation upon approval of a permit from BLM.

This EA also follows guidance included in the *Endangered Species Act* (as amended), the *Migratory Bird Treaty Act* (as amended), BLM Manual Handbook H-6310-1, *Wilderness Inventory and Study Procedures Handbook*, BLM Manual 6840, *Special Status Species Management*, BLM Instruction Memorandum No. UT 2001-092, *Documentation for Actions Involving Lands with Wilderness Concerns*, and BLM Instruction Memorandum No. UT 2001-081, *Utah BLM State Sensitive Plant and Animal Species List*.

The proposed seismic exploration would be consistent with the *Uintah County Plan for Management of the Book Cliffs Resource Area* (Uintah County Commissioners 1998), which states that "Uintah County's economy is based upon extractive mineral industries and will continue to be in the foreseeable future. The County supports maintaining and increasing renewable resource values, but the vital importance of the minerals industry should be given the highest priority possible. Utilizing Best Management Practices has demonstrated that the mineral industry and renewable resources can thrive at the same time; however, unwarranted overprotection of renewable resources at the expense of the minerals industry is contrary to the *Uintah County Plan*."

The Utah Department of Natural Resources, Division of Oil, Gas, and Mining has granted permission to Veritas to conduct the exploration (Appendix A). Veritas has obtained permission to conduct the proposed project on land administered by the State of Utah Institutional Trust Lands Administration (SITLA) and has a permit pending for lands administered by the Utah Department of Natural Resources, Division of Wildlife Resources. Veritas would contact all fee owners of surface and/or minerals and their permission would be obtained prior to beginning any geophysical surveys on those lands.

A permit to conduct geophysical surveys on lands owned and managed by the Northern Ute Tribe is pending with the Tribe. If such a permit were not issued in a timely manner, no seismic exploration would be conducted on Tribal lands. Seismic UU-01 and UU-16 would be truncated where they cross Tribal lands on their north and west ends, respectively, and the portion of line UU-05 that is proposed on Tribal lands would not be included. Allotted lands along Willow Creek would be avoided.

In September 2001, Veritas conducted seismic exploration along a 2-mi line in Sections 8 and 9, T12S, R22E. The project was analyzed in the *Environmental Assessment for a 2-Mile Seismic Line, Sections 8 and 9, Township 12 South, Range 22 East, Uintah County, Utah, by Veritas DGC Land, Inc., EA No. UT-080-2001-475*. A Decision Record and Finding of No Significant Impact was issued by the BLM Vernal Field Office on August 21, 2001. The project analyzed in that EA took place within the same environmental setting and using the same techniques as proposed by Veritas in this document.

### **1.3 SCOPING OF THE DECISION**

#### **1.3.1 Issues**

BLM resource specialists in the Vernal Field Office reviewed Veritas' Proposed Action and conferred with other agencies and the public to determine impacts to the critical elements of the human environment and other resources. BLM has had, and is continuing, informal consultation with the U.S. Fish and Wildlife Service (USFWS). Based on this review it was determined that, in addition to the critical elements of the human environment, resources that would be of special concern would include visual resources, soils, vegetation, wildlife, recreation, wilderness inventory areas and Utah Wilderness Coalition (UWC) proposed wilderness unit, and paleontological resources.

On June 19, 2002, the BLM met with and discussed the Veritas Uintah 2D project with the Northern Ute Tribal Business Committee. The Committee had no formal opinion of the project. In addition, at the start of the public review period letters with the EA enclosed were sent to nine tribes. They were the Hopi, Northern Ute, Shoshone-Bannock, Ely Shoshone, Southern Ute, Ute Mountain Ute, Navajo Nation, Duckwater Shoshone, and Shoshone Tribes. The Hopi and Southern Ute Tribes responded with comments.

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Because of the size and location of the project area and the statewide interest in the resources that occur in the area--especially big game and wilderness--public interest is anticipated to be high.

### **1.3.2 Scope Of Decision**

This assessment focuses on geophysical exploration and data collection within the project area. Any subsequent actions proposed by energy companies are not considered a connected action and would need further environmental analysis.



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## **2.0 THE PROPOSED ACTION AND ALTERNATIVES**

### **2.1 THE PROPOSED ACTION**

Veritas proposes to conduct 2-D seismic exploration along 17 lines ranging in length from 14.5 mi to 37.7 mi and totaling approximately 457 mi in Uintah County, Utah. The seismic lines would be within an area generally bounded by Township 7 South on the north, Township 14 South on the south, Range 18 East on the west, and Range 25 East on the east--an area encompassing 88 townships, or 3,168 mi<sup>2</sup>; however, seismic lines would not occur in all the 88 townships. The exploration would involve drilling, shooting, and recording underground charges along the lines (see Figure 1.1) that would directly affect less than 0.02% of the project area.

On September 19, 2002, Veritas notified (email: Rick Travino to Duane DePaepe, 9-19-02) the BLM of a change in the proposed action. Veritas has excluded a portion of their line UU-06 from the north line of T15S-R24E to the south end of this line. The excluded portion is approximately 15 mi long.

#### **2.1.1 Surveying, Drilling, Shooting, and Recording**

A survey crew would identify and stake the locations of the proposed seismic lines using a combination of pickup trucks, ATVs, and foot traffic. The final location of the seismic lines may vary by up to 0.25 mi from those indicated on Figure 1.1 to facilitate access, to survey areas of specific interest, or to avoid sensitive environmental areas. No dozing would be required, and no other types of heavy equipment would be used for removing or clearing vegetation along the seismic lines.

Veritas would drill shot-holes at intervals of approximately 330 ft along each line; however, the distance between shot-holes may vary from that interval to avoid sensitive areas or physical obstacles. However, all shot-holes would be within the area cleared for cultural resources (50 ft each side of the seismic line). Shot-holes would be a maximum of 60 ft deep and approximately 3.5-4.5 inches in diameter. The charge would consist of 2.5 to 11.0 pounds of Pentolite. Shot-holes would be drilled using three kinds of equipment, depending upon the local terrain: 1) a truck-mounted conventional drill would be used in open and relatively flat terrain; 2) buggy-mounted drills (Figure 2.1) would be used in rougher terrain, but terrain still accessible to wheeled vehicles (buggies are equipped with large-diameter balloon tires to minimize disturbance to soils and vegetation); and 3) heli-portable drills (Figure 2.2) would be used in



Figure 2.1 Buggy-mounted Drill.



Figure 2.2 Heli-portable Drill.

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terrain too steep or rough for access by truck- or buggy-mounted drills and in all areas inventoried by BLM and determined to have wilderness characteristics in BLM's 1999 Utah Wilderness Inventory (BLM Wilderness Inventory Areas [WIAs]) or other areas where off-road vehicles (ORVs) are prohibited.

The tires of trucks and buggies would not be chained, and the trucks and buggies would traverse the entire seismic line in order to drill, except for environmentally sensitive areas (cultural resources, sensitive plants, etc.) identified during surveys conducted prior to drilling (see Section 2.1.5) or specifically discussed elsewhere in this document. Truck-mounted drills would exert a pressure of 27 pounds per square inch (psi) on the ground surface, and the trucks would be 4WD. Buggy-mounted drills would exert a pressure of 5 psi on the ground surface. For comparison, a 3/4 ton 4WD pickup truck exerts approximately 27 psi on the ground surface. Slopes in excess of 40% would be too steep for drilling with truck- or buggy-mounted drills, and would be drilled using heli-portable techniques, as would areas where vegetation is so dense that it prevents access by truck- or buggy-mounted drills. Truck- and buggy-mounted drills would make one to six passes along any seismic line, depending upon access to and from the line. Truck- and buggy-mounted drills would likely complete drilling of 1.0-1.5 mi of line per day.

ATV use would be restricted to seismic lines and existing roads and trails. There would be no cross-country travel between seismic lines. In WIA's, ATV's would be the only wheeled vehicles used and would be restricted to existing roads and trails. No drilling mud would be used. Shot-holes would be air-drilled. Shot-holes would be backfilled and plugged after being loaded as per Utah Division of Oil, Gas, and Mining regulations. Any shot-holes drilled through water-bearing zones would be filled with bentonite to a point above the water zone. Any cuttings resulting from drilling the shot-hole not used in backfilling would be scattered about the immediate area. Under certain circumstances water may be required for drilling, but this would occur only when drilling through loose, unconsolidated rock. Most such substrates occur as alluvial fill in drainages, and those areas would be avoided (see Section 2.1.5.7). It is estimated that no more than 0.25 acre-ft of water would be required for all drilling on the project. The water would be obtained from the Vernal municipal water supply or some other source determined to be non-depleting to the Upper Colorado River and transported to the drill site using a water buggy (Figure 2.3) or, if the shot-hole is being drilled using heli-portable techniques, water would be provided via helicopter.



Figure 2.3 Water Buggy.

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After completion of drilling, a recording crew would walk the lines to lie out the cables and geophones to be used to record the results of the shots. The recording crew would be supported by a helicopter. Geophones would be placed on the surface at intervals of approximately 55 ft along the seismic line. ATVs would be used for troubleshooting by recording crews. After the cables and geophones were laid out, the holes would be shot consecutively and the data recorded. Finally, the cables and geophones would be picked up in the same manner as they were laid out.

When using truck- or buggy-mounted drills, a 10-ft wide corridor (1.2 acres per mi) would be used by the truck or buggy, resulting in some soil disturbance and broken/crushed vegetation. When using heli-portable drills the only disturbance would be to an area of no more than 13 ft<sup>2</sup> around the shot-hole. Based on initial surveys, it is estimated that one-third of the lines would be drilled with truck-mounted drills, disturbing approximately 190 acres; one-third of the lines would be drilled with buggy-mounted drills, disturbing approximately 190 acres; and one-third of the lines would be drilled with heli-portable drills, disturbing approximately 1 acre. Total estimated disturbance would be approximately 381 acres.

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### **2.1.2 Access and Staging Areas**

Vehicular traffic would be limited to the 10-ft wide corridor along the seismic lines and designated access routes, all of which would be cleared for cultural resources. Existing routes would be used to the practicable extent, and would include, but not be limited to: State Highways 40, 45, and 188; Wonsits Valley Road; Glen Bench Road; DG&T Road; Kennedy Wash Road; Hatch Reservoir Road; Coyote Wash Road; Chipeta Grove Road; Little Bonanza Road; Dragon Road; Southam Canyon Road; Rainbow Road; Asphalt Wash Road (including East Fork); Bitter Creek Road; Kingswell Road; Atchee Wash Road; West Fork Saddletree Draw Road; Bates Knolls Road; Camp Canyon Road; East Bench Road; West Fork Cottonwood Wash Road; Seep Ridge Road; Willow Creek Road; Buck Canyon Road; Sand Wash Road, Klondike Canyon Road; and numerous unnamed oil and gas roads. Vehicles traveling along seismic lines would be limited to one track to minimize damage to plants unless otherwise directed by BLM. Access to steeper areas would be from the side with the least amount of slope in order to avoid damage to soils and vegetation.

Staging and storage areas would be located in areas of existing surface disturbance such as well pads and roads. Explosives would be stored and secured according to U.S. Bureau of Alcohol, Tobacco, and Firearms (BATF) regulations (27 C.F.R. Part 55, Subsection K).

### **2.1.3 Schedule and Work Force**

Veritas would plan the timing of the seismic exploration along each line so as to reduce the impact to sensitive resources. This would also reduce the number of surveys that Veritas would have to conduct for sensitive resources. For instance, conducting seismic exploration outside of the raptor mating/nesting season would obviate the need for raptor nest surveys, resulting in reduced costs for Veritas and increased protection for raptors.

A line would be surveyed and the location of shot-holes would be determined, after which inventories for archaeological and, if appropriate, other resources would be conducted. Depending upon the results of the surveys, shot-hole spacing would be adjusted to avoid sensitive resources. After approval of these surveys by the appropriate state and/or federal agency, including the Section 106 compliance process (36 C.F.R. 800) for cultural resources, determination of any appropriate avoidance/mitigation, and notification by the BLM, the Northern Ute Tribe, or other affected landowners, seismic exploration

would begin. Shot-holes would be drilled and the shots set, after which the cables and geophones would be laid out and the line would be shot. The workforce would include three or four survey crews, five heli-portable drilling crews, five buggy drilling crews, and two conventional (truck-mounted) drilling crews. Each crew would consist of two workers. In addition, there would be support personnel such as supervisors and workers specializing in setting explosives and in safety. The recording crew would consist of 32 workers, and approximately 140 days would be required for recording. Field camps, if used, would be located on previously existing field campsites on private property. One crew could drill approximately 1 mi/day, and one recording crew could shoot and record approximately 3 mi/day.

#### **2.1.4 Reclamation**

No reclamation is proposed.

#### **2.1.5 Applicant-Committed Environmental Protection Measures**

##### **2.1.5.1 Fire Protection**

All ATVs would be equipped with spark arresters and all four-wheel-drive buggies would be diesel powered. All vehicles would be equipped with fire extinguishers and shovels. When a helicopter would be on location, it would be equipped with a water bucket. Veritas would coordinate project activities with appropriate fire personnel in the BLM Vernal Field Office.

##### **2.1.5.2 Disposal of Trash and Other Waste Material**

All trash would be picked up and disposed of at an approved site--most likely the Uintah County sanitary landfill east of Vernal. No potentially harmful materials or substances would be left on, or in the vicinity of, the seismic lines.

##### **2.1.5.3 Protection of Existing Facilities and Rights-of-Way (ROWS)**

Veritas would maintain a safe operating buffer between shot-holes and existing facilities (Table 2.1).

Table 2.1 Distance from Shot-Holes to Various Objects (accepted industry standards based on peak particle velocities).

Object	Size of Charge (lbs) and Setback Distance (ft)				
	5 lbs	6-10 lbs	11-20 lbs	21-40 lbs	41-100 lbs
Pipeline less than 6 inches in diameter	100	140	190	230	290
Pipelines 6-12 inches in diameter	150	215	280	350	430
Pipeline greater than 12 inches in diameter	200	290	380	460	580
Telephone line	40	56	76	80	115
Railroad track or main paved highways	150	215	280	350	430
Electric power line (shot-hole not to exceed 200 ft depth)	2 x the hole depth				
Water wells, buildings, underground cistern, and all other objects not mentioned above.	300	430	560	700	860
Producing oil and gas wells	500	750	1,000	--	--

Gates would be used for crossing fences whenever practicable. If a fence must be crossed by a vehicle at a location other than an existing gate, the fence would be cut and H-braces would be installed to support the existing fence and, if livestock are present, a temporary gate would be installed to prevent livestock movement from appropriate pastures. Upon termination of activities, the temporary opening would be permanently wired shut and the wires stretched to their original tension.

Any facilities damaged, destroyed, or removed because of geophysical exploration would be immediately repaired or restored to the original condition or replaced with a similar facility.

No active mines would be affected by the proposed seismic lines. Inactive mines (veins) would be avoided by 220 ft.

#### 2.1.5.4 Cultural Resources

Prior to any surface-disturbing activities associated with this project, Veritas would utilize the services of a qualified archaeological firm to conduct Class I and Class III cultural resource surveys along and near the seismic lines as staked on the ground. All access routes, staging areas, vehicle parking areas, etc., not previously cleared would be inventoried. Any previously unrecorded prehistoric or historic archaeological sites and properties discovered during the inventory would be recorded. The BLM would complete the appropriate consultation with both the SHPO and the Ute Tribe regarding the findings of the inventory in compliance with the Section 106 process (36 C.F.R. 800). Any prehistoric or historic archaeological sites and properties found within the immediate project area would be avoided.

If an archaeological site and/or property were found at anytime during the project, all surface-disturbing work at such site would immediately cease and the BLM contacted. Any further work at that site would not resume until and unless authorized by the BLM, or the appropriate authorized officer for lands other than BLM-administered lands.

Workers would be instructed to leave undisturbed and uncollected any artifacts that they may discover during the proposed project.

#### 2.1.5.5 Public Safety

Veritas would post people around blasting areas to provide an adequate safety zone to prevent injury or property damage to people or vehicles. Veritas personnel and their contractors would stay at least 100 ft away from shot-holes during detonation, and other people would be kept at least 300 ft away from shot-holes during detonation. Personnel would be posted to ensure that nobody unknowingly drives into an area being shot.

Veritas would encourage their personnel and subcontractors to wear hunter orange during the hunting season as a safety precaution.

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#### 2.1.5.6 Soils and Vegetation

To reduce impacts to vegetation and soils, Veritas would limit vehicular traffic to the seismic line and designated access routes. Vehicles along seismic lines would be limited to one track to minimize damage to plants. In areas of pinyon-juniper or other trees, Veritas would avoid damaging trees to a practicable extent. Large trees would be avoided. Shot-holes would be located so that no clearing of brush or trees would be required for drilling. All vehicles would be instructed to travel at slow speeds to limit disturbance to soils and vegetation. No vehicles would be operated during periods of saturated soil conditions when surface ruts deeper than 4 inches would occur.

#### 2.1.5.7 Floodplains, Streams, Springs, Wells, and Wetlands/Riparian Areas

Veritas would not take vehicles on or within 300 ft of a wetland or riparian area unless the area would be frozen to a depth capable of supporting the geophysical exploration vehicles. No drilling or shooting would occur within 500 ft of any flowing stream such as the Green River, White River, Bitter Creek or Willow Creek. No drilling or shooting would occur in floodplains; however, recording would occur in floodplains.

No drilling or shooting would occur within 500 ft of all springs, flowing wells, and stock water wells.

#### 2.1.5.8 Wildlife

No drilling would occur and no explosives would be detonated between May 10 and June 1 in the Monument Ridge migration corridor (T13S, R23 and 24E; T14S, R23 and 24E; and T15S, R24E) (BLM 1984; p.114) in order to protect the migration of mule deer.

No drilling would occur and no explosives would be detonated in elk or mule deer crucial winter range between November 15 and April 15 or in elk or mule deer crucial calving/fawning range between May 15 and June 30 unless an exception were granted by the BLM (BLM 1984; pp.114 and 115).

If drilling and/or shooting a line would occur during the raptor mating/nesting season, Veritas would employ a qualified, BLM-approved biologist to survey the line for active raptor nests within 0.5 mi of the line. This pertains to known nests and habitat between nests on lines of suspected habitat (e.g., cliff

faces, rocky outcrops, and trees on the edge of a juniper habitat). (The location of known raptor nests is on file with the BLM Vernal Field Office. This information would be provided to the qualified, BLM-approved biologist conducting the raptor nest surveys, but is otherwise considered confidential and is not presented in this EA.) No drilling would occur and no explosives would be detonated within 0.5 mi of an active raptor nest (1.0 mi for peregrine falcon) during the mating/nesting season or within 0.5 mi of a bald eagle winter roost area, unless an exception was granted by the BLM. The raptor protection criteria outlined in Table 2.2 would be adhered to should any such species be found nesting within the project area.

Table 2.2 Raptor Protection Dates for Mating/Nesting (from *the Diamond Mountain RMP*).<sup>1</sup>

Raptor	Seasonal buffer
Golden eagle	February 1 - July 15
Bald eagle	January 1 - August 15 (November 1 - March 15 for winter roost areas)
Peregrine falcon	February 1 - August 31
Great horned owl	February 1 - May 15
Ferruginous hawk	March 1 - July 15
Long-eared owl	March 15 - June 15
Red-tailed hawk, Swainson's hawk, harrier, prairie falcon, and osprey	April 1 - July 15
Burrowing owl	April 1 - August 15
Mexican spotted owl	March 1 - August 31
Goshawk	April 15 - August 20
Merlin	April 15 - June 25
Short-eared owl	April 10 - June 15
Kestrel	May 1 - June 30
Cooper's Hawk	May 1 - August 15
Turkey vulture	May 15 - August 15
Sharp-shinned hawk	June 20 - August 15

<sup>1</sup> These seasonal buffers have been developed over years of input and coordination with the Utah Division of Wildlife Resources (UDWR) and the USFWS. The most current USFWS guidelines have been reviewed.

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No drilling would occur and no explosives would be detonated within a greater sage-grouse habitat (suitable habitat within 2.0 mi of an active lek) during the breeding and nesting season of March 1 to June 15 unless an exemption was being granted by BLM.

#### 2.1.5.9 Threatened, Endangered, Proposed, Candidate, and Sensitive Plant and Animal Species (TEPCS Species)

No surface water depletions from the Upper Colorado River would occur. All water used on the project would be obtained from the Vernal municipal water supply or other source determined to be non-depleting to the Upper Colorado River. Water use would be limited to that required for backpack sprayers (for fire suppression) or for the drilling of a small number of shot-holes.

Surveys for TEPCS species would be conducted by qualified personnel funded by Veritas at the direction of the BLM on a site-specific basis depending upon known or possible occurrence of each species along each individual line and, should TEPCS species be found, avoidance would be conducted at the direction of the BLM.

Veritas would follow the surface-disturbing restrictions included in EA No. 080-1999-02, which applies to the black-footed ferret introduction area.

#### 2.1.5.10 Noxious Weeds

Veritas would power-wash all equipment prior to use in the project area to minimize the potential for the introduction of noxious weeds.

#### 2.1.5.11 Air Quality

All vehicles and construction equipment would be properly maintained to minimize exhaust emissions and would be properly muffled to minimize noise.

#### 2.1.5.12 Miscellaneous

In order to minimize impacts to the environment from personnel involved in the proposed project, employees and contractors would be subject to the following regulations: no harassing or shooting of

wildlife, no trash left in any unauthorized location, no unnecessary off-road driving, and no collecting of plants.

## **2.2 ALTERNATIVES CONSIDERED BUT NOT ANALYZED**

Geophysical exploration can be accomplished by utilizing various methods. Seismic reflection methods using shot-hole explosives or vibroseis trucks are the most commonly used methods in this area, although surface shots can also be used. All of the seismic reflection methods use geophones and cables during data recording. The use of vibroseis trucks would not be appropriate for this project due to the extensive areas of rough terrain that would limit/prevent their access; therefore, this method was not considered viable for the project area. Surface shots do not provide the quality of data that shot-hole explosives do, present a greater fire danger than shot-holes, and often result in increased surface disturbance in the vicinity of the shots depending upon ground conditions and the amount of explosives used. Therefore, the use of shot-holes would be the preferred method to provide quality data and to minimize impacts to the environment.

Consideration was given to extending seismic lines into the Winter Ridge WSA; however, this alternative was rejected so as to avoid any impairment to the WSA.

Consideration was given to avoiding any encroachment on WIAs and areas proposed for wilderness designation by the Utah Wilderness Coalition (UWC)--UWC-proposed wilderness--by seismic lines, either by: 1) locating seismic lines so they would not cross a WIA or UWC-proposed wilderness; or 2) stopping drilling/shooting when a line entered a WIA or UWC-proposed wilderness and resuming drilling/shooting when the line left the area. However, implementation of either of these alternatives would result in unacceptably large voids in data collection. In addition, under these two alternatives the seismic lines could not be tied to existing wells with known geology. This would also diminish the value of the seismic data. Neither alternative would allow Veritas to meet the purpose and need for the proposed project because data required to determine the potential for the occurrence of oil and gas resources in the underlying formations could not be obtained; therefore, neither alternative was analyzed in detail.

## **2.3 THE NO ACTION ALTERNATIVE**

Under the No Action Alternative the Proposed Action would not be authorized. All other current land uses and resource trends would continue.

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### **3.0 THE AFFECTED ENVIRONMENT**

Resources considered in this EA include the critical elements of the human environment (BLM 1988, 1999a) as well as six additional resources: soils, vegetation, wildlife, recreation, paleontology, and visual resources. Of these resources, all but soils, vegetation, wildlife, threatened and endangered species, paleontological resources, cultural resources, wilderness, and weeds were dismissed from further analysis because with applicant-committed mitigation measures they would not be noticeably affected by the alternatives (Table 3.1). These resources are discussed in detail in Chapters 3.0 and 4.0 of this EA.

The proposed project would occur primarily in the Uinta Basin section of the Northern Colorado Plateau (Fenneman 1931) and would include essentially all but the most northern portion (Townships 4, 5, and 6) of the BLM Book Cliffs Resource Area. Three lines cross portions of the Uintah and Ouray Indian Reservation. Elevations in the project area range from approximately 5,000 to 8,000 ft.

The two major perennial streams within the project area are the Green and White Rivers. The Green River at Ouray has a mean annual discharge of 5,428 cubic ft per second (cfs) (3,930,000 acre-ft/yr) and is regulated (since November 1962) by Flaming Gorge Dam. The flow of the White River at its mouth averages 457,000 acre-ft/yr, and the river fully supports its designated beneficial uses. Other smaller perennial streams include Willow Creek, Bitter Creek, and Evacuation Creek. Salinity is a concern in all waters of the Upper Colorado River drainage, although no high-salinity water sources occur in the project area. Numerous seeps and springs are scattered throughout the project area.

The project area is used primarily for oil and gas extraction, livestock grazing, wildlife habitat, and recreation. Mining for occurs in the Bonanza area. Most of the project area is owned by the federal government and managed by the BLM, is within the Uintah and Ouray Indian Reservation, or is owned by the State of Utah School and Institutional Trust Lands Administration.

#### **3.1 SOILS**

Ten generalized soil types occur in the project area (BLM 1984). Areas of greatest concerns involving potential erosion are those areas with slopes greater than 40%, and the drainage channels of the numerous ephemeral washes.

Table 3.1 Critical Elements of the Human Environment<sup>1</sup> and Other Resources Considered but Eliminated from Further Analysis, Veritas Uinta Basin 2-D Project.

Resource	Rationale for Elimination from Further Analysis
Areas of Critical Environmental Concern <sup>1</sup>	No areas of critical environmental concern are present in the project area.
Environmental Justice <sup>1</sup>	Uintah County has a minority population of 14% and a poverty population of 18% (pers. com., May 20, 2002, with Nancy Reish, Environmental Protection Specialist, Environmental Protection Agency, Region VIII, Denver, Colorado, by Roger Schoumacher, TRC Mariah Associates Inc., Laramie, Wyoming). The Proposed Action and alternatives would not cause disproportionately high and adverse human health or environmental effects on minority populations, low-income populations, or Indian tribes.
Prime or Unique Farmlands <sup>1</sup>	No prime or unique farmlands are present in the project area.
Floodplains <sup>1</sup>	There would be no drilling or shooting in floodplains: however, recording would occur. Recording is non-surface disturbing. For this project the floodplains, also referred to as 100-year floodplains are the Green River, White River, Willow Creek, Bitter Creek, Evacuation Creek, Coyote Wash, Red Wash and Kennedy Wash.
Native American Religious Concerns <sup>1</sup>	There are no known issues of concern to the Native American Tribes associated with the alternatives.
Hazardous or Solid Wastes <sup>1</sup>	No chemicals subject to SARA Title III in amounts greater than 10,000 lbs would be used. No extremely hazardous substances as defined in 40 C.F.R. 355 in threshold planning quantities would be used.
Wild and Scenic Rivers <sup>1</sup>	The White River is eligible for further consideration for further study for inclusion under the <i>Wild and Scenic Rivers Act</i> , although it has not been inventoried by BLM and no decision has been made as to its eligibility. The Green River from Ouray to Sand Wash has been recommended for scenic river status under the <i>Wild and Scenic Rivers Act</i> . However, the wild river status of the White River and the Green River would not be affected by the alternatives because no drilling would occur within 500 ft of either river (see Section 2.1.5.7).
Wetlands/Riparian Areas <sup>1</sup>	Wetlands and riparian areas would be avoided by the alternatives unless the area would be frozen to a depth capable of supporting the geophysical exploration vehicles (see Section 2.1.5.7).
Air Quality <sup>1</sup>	Air quality in Uintah and Duchesne Counties is in compliance with federal and state ambient air quality standards. The alternatives would not affect air quality because activities would be short-term in any given location, no construction/earth moving would occur, and vehicles and construction equipment would be kept properly tuned to minimize emissions (see Section 2.1.5.11). No permits or authorizations from the State of Utah, Division of Air Quality, would be required.
Visual Resources	The majority of the project area is Visual Resource Management (VRM) Class IV, which allows major modifications to the existing character of the environment. Some selected areas, primarily along drainages and high in the Book Cliffs, are VRM Class II and III, which allow low (Class II) and moderate (Class III) changes to the existing character of the landscape. Most of the area bordering the White River and the extreme southern portion of the project area in the Book Cliffs is VRM Class II, where the level of change to the characteristic landscape should be low. The alternatives would not violate existing VRM classifications because the level of change to the existing landscape would be low.
Rangelands Standards <sup>1</sup>	The alternatives would not measurably affect water, nutrients, or energy system flows because of the very small disturbance area and because of applicant-committed environmental practices designed to minimize disturbance to soils and vegetation (see Section 2.1.5.6), water resources (see Section 2.1.5.7), and existing facilities (see Section 2.1.5.3) and to minimize the potential for the introduction of noxious weeds (see Section 2.1.5.10).
Water Resources <sup>1</sup>	The alternatives would not affect water resources because all springs, flowing wells, and stock water wells would be avoided by 500 ft, all wetland and riparian areas would be avoided by 300 ft, and no drilling or shooting would occur with 500 ft of the Green or White Rivers or any other flowing streams (see Section 2.1.5.7).
Native American Trust Assets <sup>1</sup>	Because the seismic exploration is speculative, no Native American trust assets would be affected by the alternatives.

<sup>1</sup> Critical elements of the human environment (BLM 1988, 1999a).

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Some unknown amounts of biological soil crusts occur on soils in the project area; however, no surveys have been conducted to determine their locations and extent. Biological soil crusts form a rough carpet on the ground surface and underground form a matrix that binds soil particles together (BLM 2001). The crusts are composed of various organisms including Cyanobacteria, green algae, lichens, mosses, micro fungi, and other bacteria (Belnap et al. 2001; BLM 2001), and serve to reduce wind and water erosion, fix atmospheric nitrogen, and contribute to soil organic matter (Eldridge and Greene 1994; BLM 2001). Belnap (pers. com, May 17, 2001 with Jayne Belnap, Canyonlands Field Station, Forest and Rangeland Ecosystem Science Center, U.S. Geological Survey, Moab, Utah, by Roger Schoumacher, TRC Mariah Associates Inc., Laramie, Wyoming) reports that most soil surfaces in the project areas that receive direct sunlight are likely to have a biological soil crust-- either a cyanobacterial crust or a more developed crust that includes mosses and lichens. Crusts would not be present, or would be present in various stages of development, in areas that have been previously disturbed.

### 3.2 VEGETATION

Vegetation in the project area comprises several different vegetative types. These types include the salt desert shrub; sagebrush-grass, Pinyon-Juniper woodland, mountain browse, Douglas Fir/Aspen, and riparian/wetland areas along river and stream corridors. The project area has been involved in an ongoing 4-year drought, with the year 2002 being particularly severe. The drought has resulted in a decline in vegetative production and vigor, especially among the shrub species. Probably the hardest hit species has been in Wyoming sagebrush (*Artemisia tridentata* v. *wyomingensis*), which has produced drastically reduced amounts of vegetative growth, along with limited amounts of seed.

As discussed in Section 3.1, biological soil crusts occur in the project area.

### 3.3 PALEONTOLOGY

No fossil localities in the Uinta C (upper unit) have been recorded within the seismic line corridors (BLM Vernal Field Office paleontological files); however, several localities have been recorded within 1.0 mi of seismic line corridors, and the occurrence of these localities indicate that important fossils, including Eocene mammals, could be present along seismic line UU-14 (Figure 3.1). Dense concentrations of fossil localities have been recorded in the Uinta B (lower unit) along seismic line UU-14 as well (see Figure 3.1).

Figure 3.1 Location of Paleontological Resources Along Proposed Seismic Lines.

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## 3.4 WILDLIFE RESOURCES

### 3.4.1 Wildlife

The wildlife resources commonly associated with the BCRA, and more specifically the Veritas project areas are diverse and widespread. Species' occurrences are typically dependent on habitat availability, relative carrying capacities, and degree of existing disturbance. The overall project area encompasses large, fairly contiguous upland habitats, dissected by incised drainages, forested areas, and canyon systems. Lower elevations support more arid desert shrub communities, transitioning to the higher elevation pinyon-juniper woodlands, mixed cool desert shrub communities, and coniferous forests.

Big game species that inhabit the project area include pronghorn, elk, Rocky Mountain bighorn sheep, and mule deer. Rocky Mountain bighorn sheep were recently sighted (September 2002) by UDWR personnel near Willow Creek within the project area. Pronghorn are found in the lower elevations primarily in the northern portion of the project area, whereas elk and deer tend to be concentrated in the central and southern portion of the project area at higher elevations. Deer also inhabit riparian habitat along major drainages, such as Bitter Creek and Willow Creek. Crucial ranges (winter, summer, and fawning/calving) occur for both deer and elk, primarily in the southern (higher and intermediate elevation) portion of the project area. These range designations were based on the evaluation of the physical and biological characteristics of the associated habitats, including elevation, slope, aspect, plant communities, and known species' occurrence.

Black bear habitat and populations in the southern portion of the proposed project area have been under investigation for 12 years by Dr. Hal Black, Brigham Young University, in cooperation with the Utah Division of Wildlife Resources and the BLM. The results of these studies indicate that areas just south of the proposed project support an abundant population of black bears because of high habitat quality. Over the course of the study, approximately 78 individual bears have been trapped in this area, with 38 bears being captured during the summer of 2002 (pers. comm., Dr. Hal Black, September 20, 2002). Most of the bears have been trapped just south of the proposed project area, however, suitable habitat exists north of the study site within the proposed project area, typically in areas with an elevation greater than 6,000 ft (pers. comm., Dr. Hal Black, September 20, 2002). Black bears forage in the area from spring to fall, and numerous bears den in the area in the winter. The drought of 2000-2002 has resulted in poor food production for bears, and this has resulted in poor cub production. Radio collared bears

have been and will continue to be monitored by Dr. Black this year and the location of some winter dens will be determined.

A number of species of raptors nest within the project area (other than those discussed in Section 3.5). Specific species are discussed in Section 4. Raptor nests are known to occur within 0.5 mi of most of the proposed seismic lines.

Other wildlife species, (excluding migratory birds and wildlife discussed in Section 3.5), that are likely to occur in the project area include desert cottontail, black-tailed and white-tailed jackrabbit, white-tailed prairie dog, coyote, gray fox, badger, striped and spotted skunk, mountain lion, and various species of rodents and bats. Resident bird species include horned lark, black-billed magpie, common raven, loggerhead shrike, sage sparrow, Virginia's warbler, pinyon jay, and juniper titmouse. Reptiles and amphibians include short-horned lizard, sagebrush lizard, western whiptail, Great Basin gopher snake, wandering garter snake, and Great Basin spadefoot. A portion of the Bonanza Wild Horse Herd Management Area is also contained within the project area. No horses occur in the area at this time.

### **3.4.2 Migratory Birds**

The *Migratory Bird Treaty Act* (MBTA), as amended, was implemented for the protection of migratory birds. Unless permitted by regulations, the Act makes it unlawful to pursue, hunt, kill, capture, possess, buy, sell, purchase, or barter any migratory bird, including the feathers or other parts, nests, eggs, or migratory bird products. In addition to the MBTA, Executive Order 13186, sets forth the responsibilities of Federal Agencies to further implement the provisions of the MBTA by integrating bird conservation principles and practices into agency activities and by ensuring that federal actions evaluate the effects of actions and agency plans on migratory birds.

Numerous migratory bird species occupy the proposed project area. Those migratory bird species that are classified as Species of Special Concern or are federally listed as endangered or threatened or are proposed for listing are addressed in Section 3.5 Threatened, Endangered, Proposed, Candidate, and Sensitive Plant and Animal Species. This section addresses migratory birds that may inhabit the proposed project area, including those species classified as High-Priority birds by Partners in Flight. High priority species are denoted by an asterisk (\*). The species are addressed according to the habitat type with which they are typically most closely associated.

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### Coniferous/Aspen Forest

Canopy nesters in this community include the Western wood peewee, robin, vireos, yellow-rumped warbler, Clark's nutcracker\*, western tanager, Cordilleran flycatcher, Stellar's jay, Cassins' finch, ruby-crowned kinglet, great-horned owl, and least flycatcher. Ground nesters include the hermit thrush, Townsends' solitaire, dark-eyed junco, common poorwill, common nighthawk, and Lincoln's sparrow. Understory shrub nesters include the rose-breasted grosbeak, black-headed grosbeak, chipping and song sparrows, lazuli bunting, MacGillvray's and yellow warblers, and spotted and green-tailed towhees\*. Cavity nesters include the red-breasted, white-breasted, and pygmy nuthatches; the black-capped and mountain chickadee; the tree and violet-green swallows; the broad-tailed and rufous hummingbird, the western and mountain bluebirds\*; the brown creeper, the house wren, the hairy, downy, and Lewis' woodpeckers\*, the western screech, northern sawwhet, northern pygmy, and flammulated owls; the red-naped sapsucker, the American kestrel, and the merlin. White-throated swifts\* may nest in cliffs interspersed throughout the forested canyons.

### Mountain shrub/chaparral

Ground nesters found in this habitat include Virginia's warbler\* and the common poorwill. Canopy or understory nesters include the black-throated gray warbler and the great-horned owl.

### Pinyon-juniper

Species found in pinyon-juniper habitats include the black-chinned hummingbird\*, the gray flycatcher\*, the gray vireo\*, Lewis' woodpecker, Clark's nutcracker, the pinyon jay\*, the western scrub jay, the black-throated gray warbler, the bushtit, the juniper titmouse\*, the northern shrike, and Say's phoebe.

### Riparian

Species found in riparian areas include the ground nesting hermit thrush and the veery, the yellow-breasted chat, Lewis' woodpecker, Wilson's warbler, the black-chinned hummingbird\*, the broad-tailed hummingbird\*, Swainson's thrush, the great-horned owl, the western screech owl, and the Cordilleran flycatcher.

### Desert shrub/Shrubsteppe

Species found in this habitat type include the sage sparrow, the horned lark, the sage thrasher\*, Brewer's sparrow\*, the prairie falcon\*, Swainson's hawk\*, the western kingbird, and Say's phoebe.

Many of the species listed above occur in more than one habitat type throughout the project area. Some of the species breed within the project area and migrate south in the autumn, others are year-round or winter residents.

## **3.5 THREATENED, ENDANGERED, PROPOSED, CANDIDATE, AND SENSITIVE PLANT AND ANIMAL SPECIES**

### **3.5.1 Federally Listed, Proposed and Candidate Species**

#### 3.5.1.1 Plants Species

Seven plant species are listed in the January 2002 U.S. Fish and Wildlife list occur in Uintah County: clay reed-mustard (*Schoenocrambe argillacea*) Graham beardtongue (*Penstemon grahamii*), horseshoe milkvetch (*Astragalus equisolensis*), shrubby reed-mustard (*Schoenocrambe suffrutescens*), Uinta Basin hookless cactus (*Sclerocactus glaucus*), and White River beardtongue (*Penstemon scariosus* var. *albifluvis*). BLM funded plant inventories, survey map data, project survey maps, geology maps, personal knowledge of Robert Specht, Larry England and Jean Nitschke-Sinclair, were used to identify what listed, and candidate species exist or have potential habitat in the proposed project area (Figure 3.2).

There are 10 occurrences of TECP species out of an estimated 140 in the project area that would be on the routes of the seismic lines. This equates to 7.1% of TECP plant habitat would be affected by the lines going through populations. Suitable habitat is defined as habitat in association with populations that could support the species but may or not be occupied by the species. These areas have the specific habitat components that support the species. Potential habitat is habitat that meets broad criteria of the species habitat description (i.e., Green River Formation) over a large area, but has not been surveyed to determine if populations and suitable habitat occur. Approximately 63 mi of seismic lines go through

Figure 3.2 Occurrence of Potential Habitat for Special Status Plant Species Along Proposed Seismic Lines.

areas that have the general characteristics of potential habitat and need surveys to determine if suitable habitat or populations occur. This potential habitat accounts for 13.5% of the proposed project area, and in all probability there is less than 10% of this area that has suitable habitat due to the scattered pattern of the species and geological randomness of habitat on the landscape.

Clay Reed-mustard (*Schoenrambe argillacea*)

Clay reed-mustard is a threatened species that occurs in the project area within two general areas; Pack Mountain and the west slope of Wild Horse Bench. It has been estimated that a total of less than 5,200 plants occur on the 17 element occurrences (Franklin 1992). The plants occur on the upper Evacuation Creek Member of the Green River Formations on steep slopes of 30 to 35 degrees (Franklin 1992) below the contact point with the hard capstone of the Uinta Formation (Franklin 1995). Plants are found in the desert shrub community on sparsely vegetated surface bedrock, scree and fine textured soils that are generally sandy. The plants grow in both exposed and protected sites such as gullies, overhangs, and bases of shrubs and grasses (Franklin 1992), at elevations of 5,000-5,900ft. Plants bloom May to early June (Atwood 1991).

The habitat in the Pack Mountain area has been well surveyed for this species, and occurrences and suitable habitats are mapped. Populations are scattered along the ridges that form the habitat. Ben Franklin (Franklin 1995) estimated the population to be less than 5200 plants on the 9 occurrences of the plant. Population numbers may vary with seasonal moisture and the plant can be obscure in all but the wettest. Lines 5, 15 and 17 go through populations and suitable habitat for *Schoenrambe argillacea*. (Shultz 1979).

Line Number	Occupied and Suitable Habitat	Potential Habitat Needs Surveys
5	1,240 ft on BLM	None
15	2,200 ft on BLM	None
17	1,600 ft on BLM	None

Review of BLM files and consultations with the U.S. Fish and Wildlife Service were used to determine where habitat occurs for this species in the project area. Lines 5, 15 and 17 go through populations and suitable habitat for *Schoenocrambe argillacea* (Shultz1979).

Graham Beardtongue (*Penstemon grahamii*)

Graham beardtongue is a candidate species that occurs in the west part of the field office near Sand Wash, to the Colorado border. In the project area habitat and populations occur in the west, south and east portions of the project area. Plants are found on gray to white shale knolls and talus below alternating ledges of the Parachute Creek and lower Evacuation Creek members of the Green River Formation. This formation forms an arch from the Colorado Border at the White River south to McCook Ridge and up to the confluence of Hill and Willow Creeks, and west to the Green River. The plant is found along the Green River, outside the project area, on tufaceous blocks (Shultz 1979).

Populations are scattered along the formation where the shale is exposed at the surface. Digital mapping of data shows the plant is currently on 80 sites from Colorado border to Desolation Canyon and occupies approximately 1287 acres. Suitable habitat is found on open and sparsely vegetated areas within Desert Shrub and within the Pinyon/Juniper woodland communities. The woodland sites are on open barrens or among scattered trees usually in small dry washes (Stultz 1979). The plants bloom from May to June and are short lived (Atwood1991). Elevations range from 4,600 to 6,700 ft. Lines 1, 3, 6, 7, and 8 go through populations, suitable, and potential habitat for *Penstemon grahamii*

Line Number	Occupied and Suitable Habitat	Potential Habitat Needs Surveys
1	300 ft on BLM	2 mi on DWR 3 mi on State 4.5 mi on BLM
3	900 ft on STATE 300 ft on BLM	None
6	300 ft on BLM	None
7	None	4.8 mi on DWR 3 mi on BLM 0.6 mi on Private
8	None	2.6 mi on BLM 3.6 mi on State

Review of BLM files and consultations with the U.S. Fish and Wildlife Service were used to determine where habitat occurs for this species in the project area. Surveys in the Seep Ridge and Willow Creek areas are complete for delineation of habitat. Surveys in the east are not adequate and habitat surveys are needed. Lines 1, 3, 6, 7, and 8 go through populations, suitable, and potential habitat for *Penstemon grahamii*.

Horseshoe Milkvetch (*Astragalus equisolensis*)

Horseshoe milkvetch is a candidate species that occurs in gravel and cobble surfaced flats and terraces of the Green River, and mixed soils in sandstone capstone and blocks in the Duchesne River Formation near Horseshoe bend. The populations and extent of the species has been well delineated by Ben Franklin (Franklin 1992). BLM lands in Wonsits Valley to Baeser Wash, where line 14 traverses, were surveyed by Robert Specht from 2000-2002 for oil and gas development. Specht found that the delineation of the species by Franklin is accurate. The north end of Line 14 is within the Duchesne River Formation but is outside the delineated habitat area for the species and does not have any suitable or potential habitat. This species will not be analyzed further as there will be no effects to the species or habitat.

Shrubby Reed-mustard (*Schoenocrambe suffrutescens*)

Shrubby reed-mustard is an endangered species that occurs in the project area in the Big Pack Mountain and Little Pack Mountain area and west on 4 sites to Nine Mile Canyon on the Evacuation Creek Member of the Green River Formation. Approximately 2,854 plants occur on 19 sites and 179 acres (Franklin 1995). The plants are found on sparsely vegetated clayey soils with white shale chips on slopes less than 30% (Shultz 1979). Elevations range from 5,100-6,500 ft.

Line Number	Occupied And Suitable Habitat	Potential Habitat Needs Surveys
1	750 ft on BLM	None
4	1,200 ft on BLM	None
15	1,500 ft on BLM	None

Review of BLM files and consultations with the U.S. Fish and Wildlife Service were used to determine where habitat occurs for this species in the project area. Lines 1, 4, and 15 go through populations and suitable habitat for *Schoenocrambe suffrutescens*.

Uinta Basin Hookless Cactus (*Sclerocactus glaucus*)

The Uinta Basin hookless cactus a threatened species occurs in the project area on Wild Horse Bench and in association with gravel surfaced knolls and benches along the Green and White Rivers. The short-spined phase of *S. glaucus* known as *S. brevispinus* is restricted to the Myton Bench area and does not occur in the project area. Populations are uncommon in the area. Plants that have been found on the northern portion of Wild Horse Bench are generally single plants. Plants found in the White River are few scattered and are associated with some of the drainages close to the White River.

Review of BLM files and consultations with the U.S. Fish and Wildlife Service were used to determine where habitat occurs for this species in the project area. Lines 2, 3, 5, 7, 10, 11 13, 14, and 16 cross potential habitat for *Sclerocactus glaucus*.

Line Number	Occupied And Suitable Habitat	Potential Habitat Needs Surveys
2	None	1,000 ft on BLM
3	None	1,000 ft on BLM
5	None	7.2 mi on BLM
7	None	1.8 mi on BLM 0.2 mi on Private
10	None	1,000 ft on BLM
13	None	1.5 mi on BLM 1.5 mi on State
14	None	1.8 mi on BLM
16	None	3.6 mi on BLM 4.8 mi on Tribal

Ute Ladies' tresses (*Spiranthes diluvialis*)

Ute Ladies' tresses is a threatened species that occurs on the Green River in Brown's Park and along the southern flank of the Uinta Mountains on streams, canals, seeps and wetlands. The project area does not have suitable habitat for Ute Ladies' tresses. Streams are incised and soils are alkaline. Portions of Willow Creek and the White River were surveyed for Ute Ladies' tresses in 1991, but no populations or suitable habitats were documented (Coyner 1991). Project design has no activities within 300 ft of perennial water, seeps, and streams, which eliminates all habitat types. This species will not be analyzed further as there will be no effects to the species or habitat.

White River Beardtongue (*Penstemon scariosus* var. *albifluvis*)

White River beardtongue is a candidate species that occur along the Colorado border and White River on semi-barren shale areas of Parachute Creek and Evacuation Creek Members of the Green River Formation. Soils are xeric, fine textured, and usually mixed with fragmented shale (Franklin 1995). The populations are found within desert shrub and pinyon/juniper vegetation communities. 14 sites contain an estimated 22,780 plants over 200 acres. 73% occurs on BLM, 25% on private and 2% on State lands.

Recent surveys (Franklin 1995) show that the area is not adequately surveyed for all populations of the species in the White River area. Review of BLM files and consultations with the U.S. Fish and Wildlife Service were used to determine where habitat occurs for this species in the project area. Lines 3, 10, and 11 go through populations or potential habitat.

Line Number	Occupied and Suitable Habitat	Potential Habitat Needs Surveys
3	0.4 mi on State	1.4 mi on BLM 2.4 mi on State 4.2 mi on Private
10	None	3.2 mi Private 0.4 mi on BLM
11	None	2.4 mi on Private 1.6 mi on BLM

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### 3.5.1.2 Animal Species

Ten fish or wildlife species inhabit the proposed project area that are federally listed as threatened or endangered, or are proposed for listing. BLM wildlife inventories, survey map data, project survey maps, and UDWR data were used to identify what listed, and candidate species exist or have potential habitat in the proposed project area.

#### Colorado River Endangered Fish Species

Four federally listed fish species associated with the Colorado River Basin occur or may occur within the proposed project area. The following four species are federally and state listed as endangered, Colorado pikeminnow (*Ptychocheilus lucius*), humpback chub (*Gila cypha*), razorback sucker (*Xyrauchen texanus*) and bonytail (*Gila elegans*). These species have experienced severe population declines. Critical habitat has been designated in the 100-year floodplain of the Green River for the four species. The White River floodplain within the project area also is designated as critical habitat for the Colorado pikeminnow.

#### Bald Eagle (*Haliaeetus leucocephalus*)

Bald eagles is a threatened species typically occupy habitats in coastal areas near lakes, reservoirs, and rivers. Nests are usually used by the same pair for several years. No bald eagle nests occur within the project area; however, one bald eagle nest may be present and active along the White River in Colorado near the northeastern end of seismic line UU-02. Bald eagles would be common in portions of the project area during the winter and would include foraging by migrants and wintering individuals, particularly where 2, 3, 8, 9, 10, 13, and 14 cross the White River and where line 5 crosses the Green River. Bald eagles have been documented during winter bald eagle surveys using cottonwood trees and cliff faces along the Green River within 1.0 mi of seismic line UU-05 (BLM Midwinter Bald Eagle Surveys 1980-2002).

#### Mexican Spotted Owl (*Strix occidentalis lucida*)

Mexican spotted owl is a threatened species and has been recorded (1958 and 1993 siting not verified) in the southern portion of the Book Cliffs and potential habitat does exist in the Book Cliff portion of the Vernal Field Office, as identified through the use of the 1997 Mexican spotted owl habitat model. No

critical habitat or protected activity centers have been identified. Potential primary breeding habitat exists on portions of proposed seismic UU-3, UU-4, UU-6 and UU-7 (UDWR, 2002, pers. com. comm.).

Mountain Plover (*Charadrius montanus*)

Mountain plover, proposed for listing, threatened have been observed within 1.0 mi and suitable habitat exists for this species along the northeast 8 mi of seismic line UU-02. Mountain plover habitat is known to include short-grass and shrub-steppe landscapes, dryland, cultivated farms, and prairie dog towns. Plovers usually nest on sites where vegetation is sparse or absent, due to disturbance by herbivores, including domestic livestock and prairie dogs. Usually, nest sites within the shrub-steppe are on active prairie dog towns. In addition to disturbance by prairie dogs or livestock, they have also been found on oil and gas well pads (USFWS Mountain Plover Survey Guide 2001).

Black-footed Ferret (*Mustela nigripes*)

Portions of UU-02 and UU-13 occur in the Black-footed ferret Coyote Basin Primary Management Zone. This reintroduction area contains an experimental, non-essential population of this endangered species. The 1985 Book Cliffs RMP was amended in 1999 (EA No. UT 080-1999-02) to allow for the reintroduction of black-footed ferrets. Ferrets released under Section 10j of the *Endangered Species Act* (ESA) are experimental, nonessential, and are not considered to be "endangered" but are treated as "proposed for listing" under the Act. This allows for more flexibility in management of the species and formal consultation with the Fish and Wildlife Service (Service) is not required. The BLM is still required to keep the Service and Utah Division of Wildlife Resources informed of proposed projects in ferrets habitat and seek advice on the best management practices to protect the animals.

The RMP amendment requires mitigation for surface and subsurface disturbance. Geophysical exploration is classified as "ephemeral disturbance." That is--the disturbance involved encroaches on prairie dog habitat for a period of less than 6 months, following which time it again becomes or can be made suitable for prairie dog use. (*Ibid*). The amendment requires that ephemeral disturbance may not occur during the "critical period" for breeding ferrets. This restriction is for no disturbance within 1/8 mi of the home range of a female ferret between May 1 to July 15.

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A spotlighting census for ferrets in August, 2002, revealed at least eight known ferrets within approximately 1/8 mi of the proposed seismic route; four of which were females, and two of the females had young.

#### Canada Lynx (*Lynx canadensis*)

Canada lynx is a threatened species that inhabits the higher elevations in Utah and uses a variety of forest types, typically those associated with snowshoe hare populations. There is no documented evidence that the proposed project area currently supports a lynx population. However, the project area may serve as a corridor between populations in the Uinta Mountains in Utah and the Rocky Mountains in Colorado.

### **3.5.2 Utah Sensitive Plant & Animal Species**

#### 3.5.2.1 Plant Species

Park rock cress (*Arabis vivariensis*), Hamilton milkvetch (*Astragalus hamiltonii*), Ownbey thistle (*Cirsium ownbeyi*), stemless penstemon (*Penstemon acaulis*), Flowers penstemon (*Penstemon flowersii*), Gibbens penstemon (*Penstemon gibbensii*), and Goodrich penstemon (*Penstemon goodrichii*), sensitive plant species listed for the Vernal Field Office, were reviewed to determine if habitat was present. The review showed there is no potential or suitable habitat for these species in the project area (Appendix C).

#### 3.5.2.2 Animal Species

Sensitive animal species occurring in the project area are discussed below. The list of sensitive species was compiled using numerous sources (pers. com., November 13, 2001, from Anne C. Axel, Information Manager, Utah Division of Wildlife Resources, Salt Lake City, Utah, to Roger Schoumacher, TRC Mariah Associates Inc., Laramie Wyoming [Appendix A]; BLM Instruction Memorandum No. UT 2001-081, *Utah BLM State Sensitive Plant and Animal Species List*; and BLM Vernal Field Office files). The distribution of some species in the project area is shown in Figure 3.3. Those species of concern with limited distributions are denoted by SD. Those species with declining populations are denoted by SP and those species that have both a limited distribution and declining populations are denoted by SP/SD. Species listed as a threatened species by the State of Utah are designated by ST.

Figure 3.3      Distribution of Sensitive Animal Species in the Proposed Project Area.

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Thirteen-Lined Ground Squirrel (*Spermophilus tridecemlineatus*), SD

This species occupies grasslands and open, semi-desert shrubland habitats with well-drained soils. Its distribution is restricted to the Uinta Basin in Utah. Suitable habitat exists for this species in the proposed project area, primarily near Coyote Basin and north of the White River. Two squirrels were collected by Dr. Liana Hatfield (Utah State University--Uintah Basin Branch Campus) in Coyote Basin, one in July 2000 and the other in June 1999.

Northern Flying Squirrel (*Glaucomys sabrinus*), SD

This species is primarily found in riparian zones and mature coniferous forests. Suitable habitat exists in riparian and forested areas within the proposed project area.

Ringtail (*Bassariscus astutus*), SD

This species is often found in rocky, boulder strewn riparian areas. They prefer dense cover and dens are usually located close to water among rocks, in caves, or in hollow logs. Suitable habitat for the species exists in the proposed project area, primarily in dry washes and along Bitter Creek and Willow Creek.

Big Free-tailed Bat (*Nyctinomops macrotis*), SP/SD

This species prefers woodland and rocky habitats and typically roosts in rock crevices, old mines, buildings, and caves. Suitable habitat for this species exists in the proposed project area.

Brazilian Free-tailed Bat (*Tadarida brasiliensis mexicana*), SP/SD

This species forms large maternity colonies in caves and mines in Utah. These bats are migratory, spending summers in Utah and wintering in the southwestern United States or Mexico. Suitable habitat exists for this species in the proposed project area.

Townsend's Big Eared Bat (*Plecotus townsendii*), SP/SD

This species occurs statewide in Utah and occupies a variety of habitat types. It is often found in forested areas. Caves, mines, and buildings are used for roosting and hibernation. Suitable habitat exists for this species in the proposed project area.

Northern River Otter (*Lutra canadensis*), SP/SD

This species occurs in rivers and creeks in Utah, but populations are small and are declining. They den in burrows, overhanging roots, and banks along water courses. River otters have been documented along the Green River and suitable habitat exists in the proposed project area.

Peregrine Falcon (*Falco peregrinus anatum*)

The American peregrine falcon was delisted on August 25, 1999. States and federal agencies are required to monitor populations of peregrine falcons for 5 years. The American peregrine falcon breeds in Utah on the Colorado Plateau, and in the Great Basin. The arctic subspecies migrates through the state. Nesting peregrines prefer high cliffs in proximity to water where riparian and wetland habitats provide suitable foraging habitat. Peregrine falcons would be common in portions of the project area, particularly where 2, 3, 8, 9, 10, 13, and 14 cross the White River and where line 5 crosses the Green River. In 1990, BLM personnel documented five peregrine falcons in White River Canyon, within the proposed project area. The eastern most sighting occurred in Section 7, T10S, R24E and the western most occurred in Section 2, T10S, R22E, SLB&M. The topography included between these sightings contains the most dominant cliff faces along the river. In addition, these cliffs contain numerous east-facing aspects. These components comprise critical elements of peregrine falcon nesting habitat. Potential suitable habitat is also available in the steep canyons in the southern portion of the proposed project area. No aeries have been documented in the project area. Suitable foraging habitat exists throughout most of the proposed project area.

Ferruginous Hawk (*Buteo regalis*), ST

The ferruginous hawk inhabits grasslands, shrublands, and steppe deserts. Ferruginous hawks typically nest at the edge of juniper habitats and open, desert and grassland habitats in Utah. Ferruginous hawks

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are susceptible to disturbance, particularly during courtship and incubation. This species has been documented to forage and nest in portions of the proposed project area.

Swainson's Hawk (*Buteo swainsoni*), SP

In Utah, this species prefers to nest in trees near open desert grasslands, shrub-steppes, and agricultural fields. Suitable habitat exists for this species in the proposed project area.

Northern Goshawk (*Accipiter gentilis*), SP

The northern goshawk typically nests in higher elevations in mature conifer forests and aspen stands and along valley cottonwood habitats. Northern goshawks are found in lower elevation pinyon-juniper woodlands during the winter. Winter foraging habitat exists within the project area, however occurrence of this species would be sporadic in the project area. This species has been documented in the southern portion of Uintah County, south of the proposed project area.

Sage Grouse (*Centrocercus urophasianus*), SP/SD

Sage grouse are found in sagebrush habitats year round. Sagebrush provides forage and nesting cover, security, and thermal cover. Broods are typically reared in moist areas that provide succulent herbaceous vegetation. Open, often elevated areas within sagebrush habitats usually serve as breeding areas (strutting ground or lek). Greater sage-grouse leks, nesting habitat, brood-rearing habitat, and wintering habitat occur within the project area and would be crossed by seismic UU-02, 06, 07, 14, and 17.

Long-billed Curlew (*Numenius americanus*), SP/SD

This species nests in the upland meadows and rangelands of Utah. It forages in moist meadow wetlands and upland habitats. Suitable habitat exists for this species in the project area, however baseline bird inventories conducted by UDWR from 1996-1998 failed to document this species in the proposed project area.

Short-eared Owl (*Asio flammeus*), SP

This owl typically occurs in open desert and semi-desert habitats, particularly near wetland vegetation. Habitat for the short-eared owl exists within the project area, especially near intermittent drainages such as Bitter Creek and Asphalt Wash, which contain thick stands of greasewood and big sagebrush, suitable for use as nesting habitat.

Burrowing Owl (*Athene cunicularia*), SP

Burrowing owls usually nest in desert valleys and grassland communities and are often found in association with dens or burrows in prairie dog colonies. Burrowing owls occur in the Primary Management Zone for black-footed ferrets in Coyote Basin and along Glen Bench Road. Suitable habitat for burrowing owls would occur throughout the project area where white-tailed prairie dogs are present.

Lewis' Woodpecker (*Melanerpes lewis*), SP/SD

This species is found primarily in the riparian habitats of the Uinta Basin and along the Green River. Lewis' woodpeckers nest in cavities of tall trees, predominantly sycamore, ponderosa pine, and cottonwood. Foraging takes place in open areas interspersed with trees. Insects are the primary food during the breeding season, with nuts and berries dominating the diet during the winter. Suitable habitat for this species exists in the proposed project area.

Common Yellowthroat (*Geothlypis trichas*), SP

This species nests in riparian and wetland habitats, but also occurs in old fields and brushy pastures. Common yellowthroats feed primarily on insects and spiders. Suitable habitat for this species exists along the Green and White Rivers and other riparian areas found throughout the project area. Baseline bird inventories conducted by UDWR between 1996-1998 documented the presence of this species in numerous riparian areas within the proposed project area.

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American White Pelican ( *Pelecanus erythrorhynchos*) SD

During the spring migration, fall migration, and breeding seasons, this species can be found at many lakes and reservoirs throughout the state. No large bodies of water exist within the proposed project area.

Osprey (*Pandion haliaetus*), SD

Ospreys occur along rivers, lakes, and ocean coasts. In Utah, ospreys occur along the Green River in the summer. It feeds primarily on fish. Nesting of this species in Utah is limited mainly to the margins of Flaming Gorge Reservoir. Foraging habitat for ospreys is located along the Green and White River corridors within the project area.

Blue Grosbeak (*Guiraca caerulea*), SP/SD

The blue grosbeak nests in thickets of lowland riparian habitat and is also associated with areas of scattered trees, shrubs, and woodland edges. Suitable habitat exists for this species in the proposed project area and baseline bird inventories conducted by UDWR between 1996-1998 documented the presence of this species along Willow Creek in the proposed project.

Utah Milk Snake (*Lampropeltis triangulum taylori*), SP

This snake is typically found in varied upland habitats, ranging from pinyon-juniper woodlands, grasslands, and canyons. This species is known to occur within the BCRA, however limited data are available documenting site-specific occurrences. Suitable habitat for the milk snake exists in the proposed project area and the species has been documented to occur in the area.

Great Plains Rat Snake (*Elaphe guttata emoryi*), SP/SD

This species habitat includes woody areas, rocky hillsides, and meadowlands along water courses. This species is primarily nocturnal, especially during the warm summer months. Suitable habitat for this species exists in the project area, and the species was documented in Ouray National Wildlife Refuge in 2001.

Bluehead Sucker (*Catostomus discobolus*) SP

The bluehead sucker is a benthic (bottom dwelling) species with a mouth modified to scrape algae. It spawns in streams during the spring and summer. Fast flowing water in mountain rivers is important habitat for this species. Suitable habitat for bluehead sucker exists in the Green and White Rivers and may exist in other streams within the proposed project area. No project related impacts are expected to this species because flowing water sources would be avoided by 500 ft.

Flannelmouth Sucker (*Catostomus latipinnis*) SP

Flannelmouth suckers are benthic species that feed primarily on algae. This species spawns in streams over gravelly areas. They prefer large rivers and are often associated with deep pools in slow-flowing water. Flannelmouth suckers are known to occur in both the Green and White Rivers.

### **3.6 CULTURAL RESOURCES**

A file search was conducted for the proposed project area on November 19 and 20, 2001, at the BLM Vernal Field Office. In addition, a supplemental file search was conducted at the Utah State Historical Society in Salt Lake City. The file search examined the study area for previous surveys that overlapped with seismic lines and for previously recorded sites within 500 ft of the seismic lines.

The file search identified 121 cultural resource inventories have examined portions of the proposed project area. The majority of these surveys were either small block surveys associated with oil and gas wells or linear surveys associated with pipelines. These inventories are not evenly distributed throughout the project area, but rather concentrated primarily in the north-central and west-central portions of the project area in or around Chipeta Wells, the Bitter Creek Gas Field, or the Wild Horse Bench-Island Gas Field areas. Otherwise, the inventories are thinly dispersed throughout the project area. Site concentrations roughly follow these inventory concentrations.

A total of 33 sites have been recorded in the project area. Of these, 12 sites are historic in nature, 20 are prehistoric, and one is unknown due to a missing site form. The historic sites are described as two rock art/inscription sites, two roads, one habitation and related oil shale exploration, one mine, three campsites

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with trash scatters, one railroad-related site, one rock alignment, and one quarter section site marker. The prehistoric sites are classified as four quarries, five campsites, nine lithic scatters, and two rock shelters.

Eleven of the 33 sites are considered eligible for nomination to the National Register of Historic Places (NRHP). Three of the historic sites are eligible for nomination to the NRHP, including the railroad, mine, and habitation/shale exploration sites. The prehistoric sites considered eligible for nomination to the NRHP include four campsites, two rock shelters, and two lithic scatters.

The sites evaluated as significant are unevenly distributed among the 17 proposed seismic lines. Lines UU-05 and UU-16 each have three significant sites associated with them. Lines UU-03, UU-08, UU-09, UU-10, and UU-15 each has one significant site associated with them. No significant sites have been recorded along the remaining lines.

The results of the file search indicate that the project area has a relatively low site density overall. A total of 121 cultural resource inventories has been completed in the project area, and 33 sites have been recorded. Eleven of these sites are significant, indicating a low density of sites along the proposed seismic lines.

### **3.7 WILDERNESS**

#### **3.7.1 General Discussion**

No designated Wilderness Areas occur in the proposed project area. The 42,462-acre Winter Ridge Wilderness Study Area (WSA) is located within the general project area; however, no project-related activities would occur within the boundaries of the WSA and it is not discussed further in this EA. All or portions of two BLM wilderness inventory areas (WIAs) are located in the project area--Desolation Canyon and White River. (The Cripple Cowboy WIA is no longer affected by this action because seismic line UU06 has been shortened and no longer crosses the WIA [Figure 3.4]). These areas were inventoried by BLM and determined to have wilderness character in the 1999 Utah Wilderness Inventory (BLM 1999b). The wilderness characteristics of these areas are listed in Section 3.7.2 of this EA. In addition, all or portions of seven areas proposed for wilderness by the Utah Wilderness Coalition (UWC-proposed wilderness units)--Bitter Creek, Sweet Water Canyon, Lower Bitter Creek, Dragon Canyon, White River.

Figure 3.4

BLM Wilderness Inventory Areas and UWC-Proposed Wilderness.

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(an addition to the existing WIA), and Sunday School Canyon, Seep Canyon, and Cliff Dweller Canyon--occur in the project area and some would be crossed by one or more of the proposed seismic lines (UWC's Sweet Water Canyon proposed wilderness unit is also no longer affected by this action).

Lands within the UWC-proposed wilderness units were inventoried by BLM in 1979-1980 and determined to lack wilderness character. On December 15, 2001, BLM received new information from UWC regarding the wilderness qualities of four of the seven UWC-proposed wilderness units. Based upon an interdisciplinary evaluation of the new information as well as other available information, BLM has determined there is a reasonable probability that three of these areas (or significant portions thereof)--White River, Bitter Creek, and Lower Bitter Creek--may have wilderness characteristics (BLM 2002b; 2002c; 2002e). For the purposes of this analysis, the assumption is made that wilderness characteristics of size, naturalness, outstanding opportunities for solitude and primitive and unconfined recreation, and supplemental values exist in those portions of these areas that the BLM determined may have wilderness character, and a more detailed description of the wilderness character of these areas is not included in this EA. For the fourth area identified and described by UWC--Dragon Canyon--BLM concluded that the information provided by UWC was not significantly different from the information considered in prior inventories conducted by BLM regarding wilderness value of the area (BLM 2002d); therefore, Dragon Canyon is not discussed further in this EA. In their December 15, 2001 submission, UWC did not provide additional information on the fifth area--Sunday School Canyon.

On September 3, 2002, the Southern Utah Wilderness Alliance (SUWA) submitted additional information on three new areas--Seep Canyon, Cliff Dweller Canyon, and Sunday School Canyon--and submitted further information on two areas--White River and Dragon Canyon--in response to the draft EA. The information provided for these proposed wilderness units was evaluated by the BLM to determine if there is a reasonable probability that wilderness character may exist. It was determined that Seep Canyon, Cliff Dweller Canyon, Sunday School Canyon, and Dragon Canyon do not have wilderness characteristics, and they will not be analyzed further in this EA. The information submitted on White River, however, was previously considered and the BLM determined that a portion of the UWC proposed wilderness unit may have wilderness character.

The relative lack of development in the vicinity of the WIAs and UWC-proposed wilderness units results in noise levels that can best be characterized as rural or natural. Wind, thunderstorms, livestock, and wildlife are the primary source of noise. Airplane and vehicular noise may also occur. Other

human-caused noises in or adjacent to these areas are associated with the exploration and/or production of oil and gas and with recreational activities. No specific noise level data are available for the WIAs and UWC-proposed wilderness areas; however, these areas are likely in the range reported for the Grand Canyon-North Rim (wilderness) and Farm and Valley sites by Wyle Laboratories (1971) for the U.S. Environmental Protection Agency. Median noise levels for those sites ranged from 19 to 39 dBA, depending upon the time of day.

### **3.7.2 BLM Wilderness Inventory Areas**

#### **3.7.2.1 Desolation Canyon WIA**

Size. The inventory area's size is 96,714 acres.

Inventory Area Description. The Desolation Canyon wilderness inventory area includes nine separate units, all contiguous to the Desolation Canyon WSA. The proposed project would occur only in the northernmost unit, east of the Green River. This part of the inventory area is located in Uintah County, about 38 mi southwest of Vernal. The terrain varies greatly, from the Green River floodplain to mesas, ridges, plateaus, canyons, and deep remote drainages. Vegetation changes from riparian species along the river to pinyon-juniper forest at higher elevations. Recreation use--floating the Green River--is the dominant use of the area. Hunting, livestock grazing, and oil and gas production also take place in the region.

Naturalness. While there are scattered human imprints in this portion of the inventory area, the individual and cumulative impact on the natural character is minor. The imprints are in various stages of rehabilitation, with most being substantially unnoticeable in the area as a whole. The expansive landscape, diverse topography, and vegetation screen the scattered human intrusions. Minor remnants of past oil and gas exploration, livestock grazing, and recreation pursuits remain, but most disturbance has been erased over time by the forces of wind, water, and vegetation regrowth.

Solitude. The inventory area is of sufficient size and configuration to provide outstanding opportunities for solitude--a large, remote area where a visitor is truly isolated from the outside world. The vast size, configuration, numerous scenic vistas, diversity of vegetation, and rugged topography provide the visitor

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with numerous places and opportunities to become isolated from others. Most of the units are remote, accessible only by foot, horseback, or boat.

Primitive and Unconfined Recreation. Desolation Canyon WIA is contiguous to and is an extension of the Desolation Canyon WSA. It enhances the outstanding opportunities provided by the WSA, including multiple-day river float-boating trips in a primitive setting, hiking, hunting, horseback riding, backpacking, back-country camping, climbing, fishing, swimming, photography, and viewing of cultural and historic sites, as well as a diversity of wildlife, nature study, and viewing of scenic landscapes. The large size and configuration of this vast wild area enhances the variety and extent of activities available.

Supplemental Values. The inventory area contains cultural, scenic, geologic, botanical, and wildlife values. Vegetation and wildlife habitats and species vary within the inventory area because of the diversity of terrain. Six endangered animal species occur or may occur in the area including peregrine falcon, black-footed ferret, bald eagle, Colorado pikeminnow, humpback chub, and bonytail chub. Ten special status animal species and six special status plants also occur or may occur in the inventory area.

### 3.7.2.2 White River WIA

Size. The inventory area's size is 13,500 acres.

Inventory Area Description. The White River WIA is located in eastern Uintah County about 30 air mi south-southeast of Vernal. There are several private parcels adjacent to or within the WIA. Deep canyons and ridges dominate. The White River, which runs east to west, forms a major canyon, with one large meander separated only by a narrow ridge. Numerous pinnacles and colorful rock outcroppings are found in the long southern side canyons.

The vegetation north of the river is a desert shrub community supporting saltbush, sagebrush, rabbitbrush and various other shrubs, grasses, and forbs. Higher elevations south of the river support pinyon and juniper woodlands on the ridgetops. Side canyon bottoms are mostly sagebrush and rabbitbrush, along with greasewood and grasses. Cottonwood trees and other riparian plants thrive within the White River Canyon itself.

The WIA is surrounded by oil and gas well production and ongoing exploration. Current uses include floating and fishing the White River, livestock grazing, hunting, and sightseeing.

Naturalness. The entire WIA has natural character. The John Wesley Powell expedition highlighted a feature in this WIA known as "Goblin City," which is an area of unique geologic beauty. Few developments exist within the inventory area: human intrusions include routes constructed to support past oil and gas development, several vehicle ways, and an abandoned structure (the Rock House) associated with past mining. As a whole, these developments within the WIA are substantially unnoticeable. The Rock House blends with the natural environment. Several of the vehicle ways are located in washes and become less noticeable with each storm event. The remaining vehicle ways are kept open only by occasional vehicle use.

Solitude. The WIA has rugged topography and is large enough to ensure an outstanding opportunity for solitude. Boundaries take advantage of ridgetops and deep canyons to isolate the WIA from adjacent ongoing oil and gas activity.

Primitive and Unconfined Recreation. The WIA's rugged topography and large size provide an outstanding opportunity for primitive and unconfined recreation. There are spectacular vistas, abundant wildlife, and unique geologic features to explore. The WIA also provides outstanding opportunities for hiking, photography, camping, and, most noteworthy, floating on the White River.

Supplemental Values. The White River provides an opportunity to access the WIA by canoe or rubber raft. The deep canyons, high ridges, cliffs, and unique geologic features create spectacular vistas. The John Wesley Powell expedition highlighted a feature known as "Goblin City," an area of unique geologic beauty within the WIA. The cottonwood trees along the river and the pinyon and juniper woodlands to the south combine to provide a variety of form, line, and color, resulting in strong visual contrasts and exceptional natural beauty. Antelope, deer, and elk are all common in the WIA. The river and adjacent cliffs also provide habitat for a variety of birds.

### **3.8 WEEDS**

Weeds have been a primary concern of the Vernal Field Office and an active weed management program has been in place for years. Inventory and weed control has been a primary objective in the area of the

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proposed project for many years due to the oil and gas activities. The primary vector in the area for the introduction of weeds is vehicles and equipment brought in for oil and gas, and recreation. Noxious weeds in the project area are field bindweed, Russian knapweed, musk thistle, broadleaf pepperweed, Scotch thistle, Canada thistle and whitetop. Infestations in the project area are low and are found on roads, well pads, facilities, recreation sites, and livestock facilities. Only two lines go through or are adjacent to infestations. Line 7 has two sites of Scottish thistle and low whitetop adjacent to the line on UDWR land, and Line 13 has Russian knapweed and Scotch thistle on a primary road in the north end adjacent to BLM and private. Both areas are being controlled with spraying. In 2002 the Russian knapweed was gone.

The Green River corridor has high infestations of Russian knapweed and broadleaf pepperweed in the riparian zone. The White River corridor has heavy infestations of both weeds in the western reaches and they decrease going west to the Colorado border. Operation plans for the project is to avoid both these areas for 500 ft on either side of the rivers.

Invasive annual weeds such as cheatgrass, Russian thistle and halogeton are found throughout the project area. The concentrated composition of cheatgrass/annual weeds were inventoried and mapped in 1992 to determine cover general cover of these species over the landscape. Most of the project area has cover of annual weeds less than 10%. The southern ends of Line 6, 7, and 8 are in 0%. Approximately 42.6 mi of Lines 1, 2, 3, 6, 9, and 12 go through portions of areas that have 10% to 60% composition. Native ranges have changed over the last 100 years and cheatgrass has been documented as a problem on native range in the area since the 1960s in the area range. Pipelines, roads, well pads and new construction sites tend to have large infestations of annual species. Control measures are being conducted by the oil companies on pad and facility sites on annual weeds and are successful. County roads, where yearly grading occurs would remain weed sites.

### **3.9 RECREATION**

Approximately 60% of the motorized use within the project area is designated as "Open" to OHV (off-highway vehicle) use. Approximately 40% is limited to motorized use along existing routes during periods of wet soils and critical wildlife periods. There is also an area closed to motorized access totaling 5,120 acres, located primarily along the south shoreline of the White River in the south half of Township 10 South and Range 23 East. The use of the project area is year round, and comes primarily

from oil and gas activity but hunting by use of pickup trucks and all terrain vehicles (ATVs) during both the big and small game hunt totals perhaps 4000 user days (any portion of a calendar day).

Figure 1.1 illustrates travel routes throughout the project area however, travel routes also exist which are not mapped and are a result of activities such as continued oil and gas construction and drilling, non inventoried routes, and also new travel areas made by other activities such as wood cutters, sheep herders, recreationists and fire fighting crews.

Off-highway vehicle registrations and sales have increased throughout the state of Utah and that has been reflected through recent localized monitoring by both the northeastern region of Utah State Parks and Vernal Field Office BLM field personnel. State registrations for ATV's and dirt bikes are up 294% in 5 years climbing from 34,000 machines registered in 1997 to over 100,000 in 2001. The Sport Vehicle Industry of America has reported an increase of sales annually of 27-30% with 30% of those sales being first time buyers.

The Utah Book Cliffs south of the White River is being managed for limited entry hunting of larger bodied and antlered deer and elk. Hunters who apply for these hunts are applying against odds of 1:5, 1:35 or as high as 1:100 for nonresident bull elk. These odds sometimes result in hunters receiving a tag once in perhaps 24 years. Because of the difficulty in drawing for a tag and due to the quality of the herds especially in the large bucks and bulls, hunters view these hunts as perhaps a once-in-a-lifetime opportunity.

Approximately 470 buck deer tags are issued along with 83 bull elk. The lower half of the project area namely from the White River north to the Kings Well Road effects some of the elk hunt (9/14 to 10/17) but a majority of the buck deer hunt (10/19 through 10/27).

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## **4.0 ENVIRONMENTAL CONSEQUENCES**

This chapter provides an analysis of the environmental consequences from implementation of the Proposed Action and No Action Alternative. Applicant-committed environmental protection measures that would avoid or reduce impacts have been included in Chapter 2.0 and the analysis in this chapter assumes that those measures would be implemented.

### **4.1 SOILS**

#### **4.1.1 The Proposed Action**

Estimated surface disturbance from truck- and buggy-mounted drills would be confined to a 10-ft wide corridor approximately 304 mi (2/3 of the 457 mi total of seismic lines)--a total of approximately 380 acres. Additional disturbance of approximately 1.0 acre would occur along the approximately 156 mi of line that would be heli-portable drilled. A BLM compliance review of a recent 2-D seismic project in the proposed project area reported that buggy-mounted drills, ATVs, and heli-portable methods caused little soil disturbance, and concluded that soils would be normal in appearance after the next spring's rains. In areas of heli-portable drilling it was difficult to locate where work had been performed (approximately 1 week after drilling), and then only at extremely close range. All that was noticeable were footprints by workers and small areas (less than 3 ft in diameter) of subsurface soil cuttings where drilling occurred. For the heli-portable drilling, surface disturbing actions would be limited to the drill hole itself (4-5 inch diameter) and the resulting impacts to soils are expected to be minor.

For the areas that would be used by vehicular traffic to complete the drilling (truck mounted drills, buggies, and ATV's) there could be as many as six passes by some form of vehicle along each line. This amount of expected vehicular traffic is expected to result in varying degrees of soil compaction, depending upon the amount of vehicle traffic, the soil type, and the density of the vegetation. Compaction of the soil could result in a multitude of affects, again depending upon the degree of compaction, such as increased soil surface strength, decreased infiltration and corresponding increased soil surface runoff, increased erosion and sediment production, decreased potential for seed germination, and a decline in root expansion and growth. In addition, the expected vehicle traffic along each line is expected to leave tire track imprints (two tracks), with the degree of depth of the imprints dependent upon the density of vegetation, the soil type, and the amount of surface rock. Formation of vehicle two

tracks on slopes between 20 and 40% could lead to the formation of rills and new flow patterns during precipitation events following the disturbance. Over the long term, these newly developed rills and flow patterns could lead to gully development. Where the vehicles cross ephemeral drainages, and new two tracks cut across channel banks, these channel banks would then be susceptible to increased erosion and lateral headcutting, depending upon the slope of each channel bank, and the degree of vegetative armoring present.

Biological soil crusts are vulnerable to surface disturbing activities including vehicle traffic (both recreational and commercial), livestock grazing, and even foot traffic. The impact of a given disturbance depends upon its severity, frequency, timing, and type, as well as the climatic conditions during and after the disturbance (Belnap et al. 2001; BLM 2001). Vehicular traffic can rapidly destroy biological soil crusts (Johansen and Rushforth 1985; Belnap 1994; Belnap et al. 2001; BLM 2001). The weight of the vehicles and their tire action would crush the crusts and break them apart, overturn them, and bury them to various degrees, and the impacts would increase with increased vehicular traffic. This would result in increased wind and water erosion and reduced nitrogen fixation on the disturbed areas until the biological soil crusts recovered.

The severity of the disturbance to crusts from the proposed project would likely be moderate (crusts are crushed, broken apart, and somewhat displaced [less than 50% overturned and buried]) to severe (crusts are crushed, broken apart, and greatly displaced [more than 50% overturned and buried]) in areas where truck- or buggy-mounted drills are used, and slight (crusts are only crushed) in areas of heli-portable drilling.

Recovery rates for biological soil crusts are dependent on numerous factors including the type, extent, and severity of the disturbance; vascular plant community structure; adjoining substrate condition; availability of inoculation material; and weather conditions during and after disturbance (Belnap et al. 2001). Cyanobacteria-dominated crusts--the most common type in the project area--are more resistant to mechanical disturbance, are highly mobile, and can recolonize disturbed surfaces relatively quickly. Examination of studies estimating recovery times for biological soil crusts vary considerably. On the Colorado Plateau, scalped plots (where the biological soil crust was completely removed) were reassessed 2 to 5 and 10 to 14 years after disturbance. After 2 to 5 years, cyanobacterial cover was predicted to recover in 45 to 110 years, whereas it recovered within 14 to 34 years. At one site, early estimates for recovery were 400 years, whereas later estimates were 42 years. In contrast, the recovery

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time for *Collema* (a lichen) after 3 years was estimated at 85 years, and after 14 years was estimated at 50 years. Cole (1990) reported that soil crusts pulverized by hikers In Grand Canyon National Park recovered substantially in the first year after trampling ceased, and after 5 years cryptogram cover had returned to pre-trampling levels and all visual evidence of damage was gone, although complete recovery had not occurred and would take longer than 5 years. Belnap (pers. com., July 27, 2001, from Jayne Belnap, Canyonlands Field Station, Forest and Rangeland Ecosystem Science Center, U.S. Geological Survey, Moab, Utah to Maggie Wyatt, Field Manager, and Bill Stringer, Assistant Field Manager, BLM, Moab, Utah) stated that "Work around the western US and other continents show that the soil flora, soil surface integrity, and nitrogen inputs is dependent upon precipitation levels. For southern Idaho north, recovery is on the order of 20-50 years. For the Moab area, it is 250-300 years if material is removed. If crushed in place (meaning a one-time pass with a vehicle), it is considerably less, but all data indicates it is still on the order of 50-100 years." Belnap (pers. com., May 17, 2001 with Jayne Belnap, Canyonlands Field Station, Forest and Rangeland Ecosystem Science Center, U.S. Geological Survey, Moab, Utah, by Roger Schoumacher, TRC Mariah Associates Inc., Laramie, Wyoming) estimates that recovery times in the project area range from 15 to 50 years for cyanobacterial crusts and 100+ years for lichen and moss development. These and other estimates of recovery time indicate that such estimates are difficult to make and depend on numerous factors, some of which are difficult to assess. The proposed project, however, would not remove biological soil crusts, but rather crush and/or bury them. Crusts crushed/buried in place with vehicles and foot traffic, are expected to recover much faster (Belnap 2001; BLM 2001) because adjacent crusts are available to provide inoculant sources to crusts crushed/buried by project-related activities, thus facilitating recovery.

Impacts would be realized only where biological soil crusts occur--an unknown portion of the less than 0.02% of the project area that would be disturbed by the proposed project. As noted in Section 3.8, increased amounts of OHV use has occurred in the project area. The expected development of visible two tracks from vehicle use on the seismic lines would likely be expected to be used by OHV users. Over time, the expected use of these two tracks by OHV use is expected to result in further compaction of the soils, the loss of soil crusts and vegetation along the tracks, and development of ruts resulting from use during saturated soil conditions. Formation of ruts on slopes between 20 and 40% is expected to result in accelerated soil erosion from water. As the ruts deepen, they eventually become gullies and would begin to headcut upwards. Where these newly produced gullies drain into channels, then the increased sediment from the gullies is expected to result in localized areas of aggradation and degradation in the channel. Experience in the project area with rutted two tracks has shown that as ruts

deepen, then vehicle use tends to widen the two track to avoid the ruts. This eventually increases the width of the two-track, resulting in increased loss of vegetation, soil crusts, and increased bare ground susceptible to erosion.

Overall, the proposed action is expected to result in increased soil erosion and sediment yields, increased soil compaction, loss of soil and vegetative productivity, and the long-term loss of soil crusts. The overall amount of produced sediment is difficult to estimate, as the overall amount of erosion is dependent upon site-specific factors such as soil type, the density of vegetation, slope, and the amount of subsequent OHV use following the initial disturbance.

#### **4.1.2 The No Action Alternative**

Under the No Action Alternative impacts to soils would continue at approximately present levels and would include additional disturbance of soils and biological soil crusts from oil and gas exploration and development, Gilsonite mining, livestock grazing, and ORV use.

#### **4.1.3 Mitigation**

The following mitigation measures could partially mitigate the long-term loss of soil crusts, increased soil erosion and compaction.

- 1) Remove all signs of vehicle tracks by raking out all tread imprints, where visible from existing roads and trails.
- 2) Rake out all vehicle track depressions/ruts back to the original contour.
- 3) Scarify compacted areas by hand raking.
- 4) Reseed all scarified areas with a seed mixture of native plants on a site-specific basis, as determined by the Authorized Officer. Shale areas that have potential T& E plant habitat would not be reseeded.
- 5) Install waterbars along seismic lines where necessary, as determined by the Authorized Officer.
- 6) Rake in some biological soil crusts (approximately 10% of the track size) from the sides when the tracks area raked out, as determined by the Authorized Officer.
- 7) When geophysical operations are complete, close seismic lines to vehicle travel with signs, and barricades if necessary, to prevent the seismic lines from becoming routes for ORV travel.

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#### **4.1.4 Unavoidable Adverse Impacts**

In the sagebrush-grass and salt desert shrub areas, it is expected that some OHV use would occur, despite the mitigation actions listed in the mitigation section. In these areas, signing and barriers are not practical deterrents, as terrain and sparse vegetation allows for OHV users to go around any barriers. Thus, some OHV use on the seismic lines is expected, and that there would be an undetermined amount of soil compaction, increased soil erosion and sediment yields, and loss of soil crusts.

## **4.2 VEGETATION**

### **4.2.1 The Proposed Action**

For the heli- portable drilling, impacts to vegetation are expected to minimal, and limited to the 3 ft area around the drill hole. For the areas that would be used by vehicular traffic to complete the drilling (truck mounted drills, buggies, and ATV's) there could be as many as six passes by some form of vehicle along each line. This activity is expected to result in the crushing and flattening of the grass and forb species. The response of these species from the flattening and crushing is dependent upon the amount of soil compaction that occurs along any one line, which is dependent upon the soil type and other factors discussed in Section 4.1.1. If there is no additional vehicle use along the lines after completion of the proposed action, than it is expected that the grasses and forbs would recover within 1-3 years following the disturbance. For the shrub species, the proposed action is expected to result in the crushing of plants and breaking off of limbs and branches. For the smaller stature red shrubs, (shadscale, winterfat, sagebrush, etc.) crushing of these plants could lead to some plant mortality. For the Wyoming sagebrush, 4 years of drought have resulted in dramatically reduced vegetative and seed production, resulting in this plant being in a severely stressed state of condition. The imposition of an additional stress vector being placed on this plant through crushing and breaking of limbs and branches from vehicle activity is expected to result in a high probability of mortality for Wyoming sagebrush along the lines where this species occurs. For the other shrubs, the crushing and breaking of limbs is expected to result in a decline in vegetative vigor and growth in the short term. It is expected to take between 3-5 years for the other shrub species to recover from the crushing and breaking of limbs, and possibly longer, if existing drought conditions continue through the next several growing seasons.

The expected long term loss of soil crusts along the lines (Section 4.1.1) and resulting increased wind and water erosion and reduced nitrogen fixing is also expected to adversely affect vegetation, as these impacts would likely prevent germination of new plants from seed, resulting in the long term lack of plant recruitment along the disturbed areas.

As noted in Section 3.8, increased amounts of OHV use has occurred in the project area. The expected development of visible two tracks from the vehicle use on the seismic lines are expected to be eventually utilized by OHV users. Over time, the expected use of these two tracks by OHV use is expected to result in additional and continued crushing of vegetation, leading to the eventual loss of all vegetation along the lines. The expected widening over time of the two tracks by OHV use (Section 4.1.1) is also expected to result in the loss of additional vegetation.

#### **4.2.2 The No Action Alternative**

Under the No Action Alternative impacts to vegetation would continue at approximately present levels and these impacts would include additional disturbance of vegetation from oil and gas exploration and development, mining, and ORV use. There would be no additional impacts from geophysical exploration at this time.

#### **4.2.3 Mitigation**

Mitigation would be the same as for soils (4.1.1.1).

#### **4.2.4 Unavoidable Adverse Impacts**

There is expected to be some mortality of small shrubs, along with an undetermined amount of mortality to Wyoming sagebrush. In the sagebrush-grass and salt desert shrub areas, it is expected that some OHV use would occur, despite the mitigation actions listed in the mitigation section. In these areas, signing and barriers are not practical deterrents, as terrain and sparse vegetation allows for OHV users to go around any barriers. Thus, some OHV use on the seismic lines is expected, and that over time, there would be an undetermined amount of vegetation lost from crushing and breaking by OHV use.

## **4.3 PALEONTOLOGY**

### **4.3.1 The Proposed Action**

The passage of rubber-tired vehicles would result in some important paleontological resources inadvertently being damaged or moved to the extent that their context would be altered. The subsequent use of the seismic lines for ORV use would increase the opportunities for damage to and vandalism of such paleontological resources.

### **4.3.2 The No Action Alternative**

Under the No Action Alternative paleontological resources would continue to be exposed to natural geomorphic processes and damage from foot and vehicular traffic associated with casual use.

### **4.3.3 Mitigation**

Partial mitigation of adverse effects to important paleontological resources would be achieved by implementing either of the following two mitigation measures.

- 1) A qualified paleontologist would survey two segments (approximately 2 mi and 3 mi in length) along the seismic line UU-14 (see Figure 3.1), collecting important fossils and related locational data. This would provide samples of the kinds of fossils known and predicted to be present in two different horizons of the Uinta Formation. Important fossils would be removed from the area and would not be damaged or destroyed. The survey corridor would extend 50 ft on either side of the centerline. In the upper unit (Uinta C) this sampling would be focused in an area where fossil localities are known to occur within 1 mi. Where important fossils occur in the lower unit (Uinta B), they would be collected from the surface (and shallow subsurface if necessary) and their localities recorded. Fossils and other data recovered would be placed in a federally approved repository and remain federal property.
  
- 2) A qualified paleontologist would accompany the seismic and support crews during the drilling phase of their work in the corridors shown in Figure 3.1. The paleontologist

would advise the crews on avoidance of paleontological resources, or when that is impossible, would collect important fossils and data that would be damaged or destroyed during operations on the line.

#### **4.3.4 Unavoidable Adverse Impacts**

There is a moderate risk that inadvertent damage or loss of important fossils could occur.

### **4.4 WILDLIFE RESOURCES**

#### **4.4.1 The Proposed Action**

To determine the impacts of Veritas' Proposed Action to area wildlife resources and their associated habitats, the specific project components were examined relative to the temporal and spatial patterns of both resident and migratory wildlife species and the current wildlife population trends apparent in the project area. The primary "change agents" to terrestrial resources would be the loss and disturbance of native habitats, possibly resulting in increased habitat fragmentation; temporary animal displacement; and direct loss of wildlife. Increasing human presence and use of the area would also impact terrestrial wildlife. The severity of both short and long-term impacts would depend on factors such as the sensitivity of the species, seasonal use patterns, type and timing of project activity, and physical parameters (e.g., topography, cover, forage, climate).

The Proposed Action would degrade approximately 381 acres of native habitats from activities associated with surveying, drilling, shooting, and recording along seismic lines.

Indirect impacts to wildlife species from increased human presence are typically proportional to the size of the operational work force, overall land use, and recreational demand (e.g., hunting, OHV use), and other activities in the region. The most common animals that would be impacted by increased human activities would include big game, raptors, and migratory songbirds. Increased human activities in the project area would displace wildlife into adjacent habitats, which may or may not be suitable for the species in question. This displacement would lead to increased inter-specific and intra-specific competition, reproductive failure, mortality, and increased stress. Vehicle-related mortalities may

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increase with the increase in traffic during project activity, depending on placement of seismic lines and the level of project related traffic.

Increased noise levels associated with increased human use of the project area may indirectly impact wildlife. Typically, animals will either avoid noise sources or become accustomed to the increased noise levels. This impact depends on the type of noise, individuals or species that are exposed, distance, buffering capacity, and the topography in and adjacent to the disturbance area. It is anticipated that noise from the Proposed Action (e.g., vehicular traffic, helicopters, drilling, and shot detonation) could result in low to moderate levels of impacts to native wildlife in the project area. Wildlife that may be impacted by increased noise levels could include species such as mule deer, elk, and raptors that may avoid certain areas during high-use periods; and groups such as songbirds, that typically rely more on auditory cues, particularly for breeding. Abrupt and intermittent noises (helicopters, shot detonation) would be more likely to disturb individuals than the more continuous noises (traffic, equipment). Because project activities would be short-term (e.g., drilling 1.5 mi of line/day and recording 3 mi/day) and move relatively rapidly along a seismic line, noise impacts to wildlife would likely also be short term. Most wildlife species would move back into the activity area soon after the disturbance has ended.

#### 4.4.1.1 Big Game

Two proposed seismic (UU-06 and 07) would occur in the Monument Ridge mule deer migration corridor; one line (UU-06) would occur in calving/fawning habitat; and eight (UU-01 and UU-03 through UU-09) would occur in winter deer and/or elk range (Figure 4.1). Activities associated with surveying, drilling, shooting, and recording along seismic lines would temporarily displace some big game animals to similar adjacent habitats. Direct effects associated with project activities would include temporary displacement of big game species and habitat loss. This temporary displacement would result in increased competition for forage and other resources within these areas. Long-term drought in the area has reduced forage quality and quantity, which may increase impacts associated with displacement, however due to the short term nature of the project, it is likely that these animals would move back into their former areas within a short time. Direct habitat disturbance associated with the project would be approximately 381 acres. Seismic lines within deer/elk crucial winter range would be drilled using heli-portable drills, minimizing habitat disturbance in these areas.

Indirect impacts associated with the project would include increased habitat fragmentation and increased human access into the region. Increased habitat fragmentation could be expected if seismic lines are subsequently used as OHV trails. This increased fragmentation would occur primarily along those seismic lines drilled using truck-mounted or buggy drills. Use of these lines by OHV, would likely lead to an increase in hunter success (due to increased access), increased disturbance or harassment of big game species, and increased animal displacement. Studies have reported that roads generally reduce the overall habitat value for mule deer for distances from 300 ft to 0.5 mi from the road, depending on the types of traffic and adjacent habitat types (Rost and Bailey 1979; Colorado Division of Wildlife 1987; Ferris 1977).

#### 4.4.1.2 Black Bear

No studies evaluating the impacts of seismic activity to black bears have been conducted. However, a long term study on the ecology of black bears has been taking place in the southernmost portion of the project area. This area has a large black bear population and excellent habitat quality (pers. comm., Sept. 20, 2002, Dr. Hal Black, Brigham Young University). The black bear population in the area is currently being impacted by drought, oil and gas development, hunting, and habitat fragmentation. The drought has reduced forage availability and quality, which has resulted in poor cub production (pers. comm. Aug. 23, 2002, Dr. Hal Black, Brigham Young University). Poor forage quality increases competition between bears. Increased oil and gas activity in this area may be displacing some bears to other locations (pers. comm., Dr. Hal Black, Brigham Young University, Sept. 20, 2002). In 2001, bears were caught in trapping locations in Hay Canyon. Energy exploratory drilling in the Hay Canyon area began after the 2001 trapping season, and in the 2002 trapping season bears were caught in only 2/6 trapping stations.

It is likely that bears would be temporarily displaced to adjacent habitats by seismic activity (pers. comm., Aug. 23, 2002, Dr. Hal Black, Brigham Young University). If bears were denning at the time seismic activity occurred, they could be temporarily displaced, they could remain in their dens, or they could be displaced to new den sites. Mortality of bear cubs has been documented to occur when females abandon den sites due to human induced disturbance (Elowe and Dodge 1989). Spring and fall are critical seasons for black bears. Bears emerge from their dens in spring with substantial loss of fat reserves. Subsequently, they begin foraging heavily to regain these reserves. In the fall, bears forage extensively in order to build their fat reserves in preparation for winter denning. Therefore, access to an

Figure 4.1 Locations of Elk and Mule Deer Crucial Winter Range.

abundant supply of forage is critical during these seasons. Seismic activity during these time periods could temporarily displace bears to areas of adjacent habitat, which may or may not have high quality forage. In addition, displaced bears may move to the home ranges of other bears which would increase inter-specific competition and competition for forage, shelter, and other resources. This would result in further displacement, mortality, or deteriorating physical condition of some bears. Females with cubs or pregnant females would likely be the most susceptible to this increased competition. Forage quality has been closely tied to the quality and quantity of milk produced by lactating females. Reduction in the quality or quantity of milk would have a substantial effect on the health and survival of cubs (Elowe and Dodge 1989). It is difficult to predict the duration of time bears may be exposed to seismic activity, and therefore the possible impacts the activity may have on the population. Seismic activity would likely come in two intervals; at the drilling of the lines and at the recording of the shots. Disturbance would likely be short term, though it is uncertain how long it would take bears to reoccupy areas if they are displaced by seismic activity. In the opinion of BLM, based on known population densities, the mortality of up to 5 bears could be expected to occur.

The terrain in the southern portion of the proposed project area where the majority of black bears are located is steep and rugged. The seismic lines in this portion of the project area would be drilled using heli-portable drills and the geophone lines would be laid out on foot. This would reduce the need for cross country OHV, truck, or buggy use in the majority of bear habitat. Therefore, the likelihood of increased fragmentation due to seismic routes subsequently being used as OHV routes would be minimal.

#### 4.4.1.3 Raptors

Golden eagle, great horned owl, ferruginous hawk, long eared owl, Red-tailed hawk, Swainsons' hawk, northern harrier, prairie falcon, burrowing owl, northern goshawk, merlin, short-eared owl, kestrel, Cooper's hawk, turkey vulture, peregrine falcon, and sharp-shinned hawk habitat exists along the proposed seismic lines. Surveying, drilling, shooting, and recording activities along portions of the lines would disrupt breeding activities. Nest abandonment, nest destruction and/or loss of chicks or adults could occur due to the use of helicopters, pickup trucks, truck mounted drills, buggies, portable drills, ATVs, and foot travel traversing the lines.

Utah State University, Uintah Basin, under contract by the BLM, have been inventorying raptor nests in the Uinta Basin, on BLM administered lands, for the last 18 months, April 2001 - September 2002. This

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research entailed verifying nest locations that have been recorded and were in UDWR and BLM files. While out verifying and documenting in GPS known nests, surrounding areas were inventoried for the presence of previously unknown nests. To date approximately 950 known raptor nests have been documented. Of the 950 nests 65 are within a ½ mi buffer of the proposed seismic lines. A 5-year ferruginous hawk research study ( 2<sup>nd</sup> year) is currently underway in the Uinta Basin. Results from the 2002 monitoring (Keogh pers. com. n.d.) revealed 8 active nests in the Book Cliff portion of the VFO. Of those active nests 2 fledged (able to fly) young. Of the 65 nests identified within the ½ mi buffer 14 are ferruginous hawk. Loss of an individual in any species would result in a loss of local population viability due to the low population number in northeastern Utah.

#### 4.4.1.4 Migratory Birds

Impacts to migratory birds in the project area would be dependent upon the timing of seismic activity. The disturbance from seismic activity would be short term in any particular location, but would come in two intervals. The drilling of the holes and the recording of the shots would occur at separate times, therefore, birds may be displaced more than once. Seismic activity during the breeding and nesting season would result in some nest abandonment, direct mortality, reproductive failure, displacement of birds, and destruction of nests. Ground nesting birds would be particularly susceptible to nest destruction. Shrub nesting birds may also be affected due to destruction of some vegetation along seismic lines. Forest nesting birds would be impacted to a lesser extent because seismic lines in forested areas with steep terrain would be drilled using heli-portable drills and geophone lines would be laid out on foot. However, noise and human disturbance may cause some nest abandonment in forested areas. Disturbance would be temporary and these impacts should not have a measurable effect on migratory bird populations as a whole or individual species in general.

Several years of drought, ongoing oil and gas development, recreation, and livestock grazing in certain locations have resulted in lack of forage and degraded habitat quality throughout much of the project area. Increased inter and intra-specific competition could result as displaced birds move into adjacent habitats which may have less suitable habitat, possibly resulting in mortality of some individuals.

If seismic lines are subsequently used as OHV trails, this would result in increased habitat fragmentation, with negative effects on migratory birds. These effects may include: nest destruction, nest abandonment,

mortality of young, reproductive failure, loss of forage and cover, and increased predation (due to increased predator access).

#### **4.4.2 The No Action Alternative**

Under the no action alternative, there would be no direct disturbance or indirect effects to big game or big game habitat from seismic activities. Current land use trends in the area would continue, including increased industrial development, increased OHV traffic, increased recreational use for hunting, bird and mammal viewing and sight seeing. A fourth year of drought conditions has resulted in low forage quality and limited production, these climatic conditions are contributing to a decline in population numbers.

Under the no action alternative, there would be no direct disturbance or indirect effects to black bears or bear habitat from seismic activities. Current land use trends in the area would continue, including increased industrial development, increased OHV traffic, increased recreational use for hunting, bird and mammal viewing and sight seeing. A fourth year of drought conditions has resulted in low forage quality and limited production. These climatic conditions are contributing to a decline in population numbers.

Under the no action alternative, there would be no direct disturbance or indirect effects to raptors or raptor habitat from seismic activities. Current land use trends in the area would continue, including increased industrial development, increased OHV traffic, increased recreational use for hunting, bird watching and sight seeing. A fourth year of drought conditions has resulted in low forage quality and limited production, these climatic conditions are contributing to a decline in population numbers.

Under the no action alternative, there would be no direct disturbance or indirect effects to migratory birds or migratory bird habitat from seismic activities. Current land use trends in the area would continue, including increased industrial development, increased OHV traffic, increased recreational use for hunting, bird and mammal viewing and sight seeing. A fourth year of drought conditions has resulted in low forage quality and limited production, these climatic conditions are contributing to a decline in population numbers.

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#### **4.4.3 Mitigation**

No drilling and no explosives would be detonated between May 10 and June 1 in the Monument Ridge migration corridor (T13S, R23 and 24E; T14S, R23 and 24E; and T15S, R24E), in order to protect the migration of mule deer. No drilling would occur and no explosives would be detonated in elk or mule deer crucial winter range between November 15 and April 15 or in elk or mule deer crucial calving/fawning range between May 15 and June 30 unless an exception were granted by the BLM (BLM 1984; pp. 114 and 115). These Applicant-committed Measures would partially mitigate project related impacts to mule deer and elk.

Black bears would be afforded some of the benefits associated with big game mitigation stated above. Avoidance of crucial deer and elk winter range would also minimize impacts to bears that may be denning in these locations and lessen impacts to bears that occur in crucial calving and fawning areas as well. Implementation of these measures would partially mitigate impacts to black bears due to project activities.

Complete mitigation for raptors would be seasonal avoidance of raptor nests, see table 2.2, Raptor Protection Dates for Mating/Nesting (from the Diamond Mountain RMP) as proposed in the Applicant-committed Environmental Protection Measures (Section 2.1.5.8).

Partial mitigation for migratory birds would be achieved by avoidance of wetland and riparian areas for those species nesting there.

#### **4.4.4 Unavoidable Adverse Impacts**

Temporary displacement of big game and black bears would be unavoidable.

For upland species nesting in coniferous forest, pinyon juniper and sagebrush habitats there would be the likelihood of nest destruction or abandonment for an undetermined number of these species.

#### **4.5 THREATENED, ENDANGERED, PROPOSED, CANDIDATE, AND SENSITIVE PLANT AND ANIMAL SPECIES**

##### **4.5.1 The Proposed Action**

Due to the low levels and temporary nature of habitat disturbances, no or very minimal habitat fragmentation for any threatened, endangered, proposed, candidate, or sensitive species is anticipated.

##### 4.5.1.1 Federally Listed Animal Species

###### Colorado River Endangered Fish

No depletion of surface water from the Upper Colorado River would occur (see Section 2.1.5.9) and no explosives would be detonated within 500 ft of any flowing stream such as the Green River, White River, Bitter Creek, and Willow Creek, and no drilling or shooting would occur in floodplains (see Section 2.1.5.7). This would ensure that no fish mortality would occur in any river or stream. C.W. Bradley from Bradley Safety Consultants (pers. com., dated December 30, 2001) stated there have been numerous studies concerning the effects of detonating explosive charges underwater for seismic exploration purposes. Detonation of explosives in or adjacent to fish habitat can cause disturbance, injury, or death to fish. An explosive charge of 40 psi (pounds/square inch) has the potential for fish mortality. The setback distances from the Green and White Rivers of 500 ft, as well as the charge amounts and depth would result in explosive charges below 40 psi.

The project may affect, but is not likely to adversely affect, the four species of endangered Colorado River fish.

###### Bald Eagle (*Haliaeetus leucocephalus*)

No bald eagle nests occur within the project area, however one bald eagle nest may be present and active along the White River in Colorado near the northeastern end of seismic line UU-02. Bald eagles would be present in the project area during the winter and would include foraging by migrants and wintering individuals. Surveying, drilling, shooting, and recording activities along portions of the line occupied by

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wintering bald eagles would result in disruption of foraging activities and displacement. The project may affect, but is not likely to adversely affect, bald eagles.

Southwestern Willow Flycatcher (*Empidonax trailii extimus*)

Suitable habitat for Southwestern willow flycatchers exists along the Green and White Rivers and Evacuation Creek. Suitable habitat may exist in other riparian areas within the proposed project area. Surveying, drilling, shooting, and recording activities along portions of the lines in which Southwestern willow flycatchers are present would disrupt breeding activities, result in nest abandonment, nest destruction, and/or loss of chicks. Applicant-committed Environmental Protection Measures restricting seismic activities near riparian habitat would ensure that the project may affect, but is not likely to adversely affect Southwestern willow flycatchers or their habitat.

Western Yellow-billed Cuckoo (*Coccyzus americanus occidentalis*)

Suitable habitat exists for western yellow-billed cuckoos in riparian areas along the Green River as well as other riparian areas that have suitable habitat for this species. Surveying, drilling, shooting, and recording activities along portions of the lines in which western yellow-billed cuckoos are present would disrupt breeding activities, result in nest abandonment, nest destruction, and/or loss of chicks. Applicant-committed Environmental Protection measures restricting seismic activities near riparian habitat would ensure that the project may affect, but is not likely to adversely affect Western yellow-billed cuckoo or their habitat.

Canada Lynx (*Lynx canadensis*)

There is no documented evidence that the proposed project area currently supports a lynx population, though portions of the area may serve as a corridor between populations in the Uinta Mountains in Utah and the Rocky Mountains in Colorado, therefore, the proposed project may affect, but is not likely to adversely affect Canada lynx.

Mexican Spotted Owl (*Strix occidentalis lucida*)

The 1997 Mexican spotted owl model identified 259 mi of potential habitat along the proposed project lines. Upon further analysis, in the opinion of Brian Maxfield (Brian Maxfield UDWR pers. com., 09-22-02) approximately 10 mi located in 6 areas on UU-3, UU-4, UU-6 and UU-7 have potential prime breeding habitat. Surveying, drilling, shooting and recording activities along these portions of lines would disrupt breeding activities, result in nest abandonment and/or loss of chicks would occur due to the use of helicopters and foot travel along traversing the line. Loss of an individual would result in a loss of local population viability due to the low population number of the species in northeastern Utah. For analysis purposes, if each of the 6 potential primary breeding habitat areas, identified above, were to have a nest and 1-2 owlets and the nest was abandoned it would result in the loss the owlets. The loss of two individuals could be a sizeable loss due to the small population size in northeastern Utah. The proposed project may affect, but is not likely to adversely affect the Mexican spotted owl if the following mitigation measure is adopted.

Mountain Plover (*Charadrius montanus*)

Mountain plover have been observed within 1.0 mi and suitable habitat exists for this species along the northeast 8 mi of seismic Line UU-02. Surveying, drilling, shooting and recording activities along this portion of line would disrupt breeding activities. Nest abandonment, nest destruction and/or loss of young or adults would occur due to the use of pickup trucks, ATVs, truck mounted drills, and foot travel traversing the line. Loss of an individual would result in a loss of local population viability due to the low population number of the species in northeastern Utah. For analysis purposes, approximately 37,000 acres of potential mountain plover habitat (Manning and White 2001) exists and has been inventoried and monitored for the last 10 years on the Myton Bench. During this 10-year time period researchers located a high of 5 nest in 1998 (Lloyd and White 2000). In all likelihood, given that 5 nests were found in 37,000 acres the probability of a line intersecting a nest is remote, but it is assumed that for analysis purposes it would happen and the nest would be destroyed leading to the loss of three individuals. The loss of three individuals would be a sizeable loss due to the small population size (14 young observed 1998 Lloyd, White 2000) in the Uinta Basin. The proposed project may affect, but is not likely to adversely affect the mountain plover if the following mitigation measure is adopted.

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Black-footed Ferret (*Mustela nigripes*)

Portions of UU-02 and UU-13 bisect the Primary Management Zone (PMZ) of the Coyote Basin Reintroduction Area of the Black-footed Ferret. Breeding activities could be disrupted and kit production decreased or forgone for the year from human disturbance, if seismic exploration occurred during the "critical" breeding period between 1 May and 15 July. In addition, adult animals may be killed or injured if blasting were to occur near prairie dog holes that ferrets may be utilizing for den habitat. Previous spotlighting surveys have determined that at least eight ferrets were located within 1/8 of a mi of the proposed line as late as the last week in August. Because of the rarity of the species, a loss of any animal or decreased reproduction for the year would be significant for the recovery of the species. The proposed action may affect, but is not likely to adversely affect the black-footed ferret if the following mitigation measures are adopted.

4.5.1.2 Utah Sensitive Animal Species

Potential impacts to special status species are listed below on a species specific basis. Impacts to raptors classified as special status species are discussed in Section 4.4.4.

Thirteen-lined Ground Squirrel (*Spermophilus tridecemlineatus*), SD

Suitable habitat exists for this species along the proposed seismic lines. Surveying, drilling, shooting, and recording activities along the lines would result in the collapsing of burrows and mortality of Thirteen-lined ground squirrels if they are present along the proposed lines. However, this species is highly mobile, and the squirrels would likely be able to avoid the activities. If seismic lines are subsequently used as OHV trails, burrow destruction and associated mortality may continue in these areas beyond the length of the proposed project.

Northern Flying Squirrel (*Glaucomys sabrinus*), SD

Suitable habitat exists for this species along the proposed seismic lines. Surveying, drilling, shooting, and recording activities would result in temporary displacement of Northern flying squirrels if they are present along the proposed lines. However, this species is highly mobile, and the squirrels would likely be able to avoid the activities, and would return to the area after the activities are completed. Applicant-

committed Environmental Protection Measures restricting activities during the calving/fawning season for mule deer should reduce impacts to northern flying squirrels as well.

Ringtail (*Bassariscus astutus*), SD

Suitable habitat exists for this species along the proposed seismic lines. Surveying, drilling, shooting, and recording activities would result in temporary displacement, the collapsing of dens, and mortality of Ringtails, if they are present along the proposed lines. However, this species is highly mobile, and Ringtails would likely be able to avoid the activities, and would return to the area after the activities are completed. If seismic lines are subsequently used as OHV trails, den destruction and associated mortality may continue in these areas beyond the length of the proposed project.

Big Free-tailed Bat (*Nyctinomops macrotis*), SP/SD

Suitable habitat exists for this species along the proposed seismic lines. Surveying, drilling, shooting, and recording activities would result in displacement, abandonment of roosts sites, and mortality of young and adult Big free-tailed bats, if they are present along the proposed lines.

Brazilian Free-tailed Bat (*Tadarida brasiliensis mexicana*), SP/SD

Suitable habitat exists for this species along the proposed seismic lines. Surveying, drilling, shooting, and recording activities would result in displacement, abandonment of roosts sites, and mortality of young and adult Brazilian free-tailed bats, if they are present along the proposed lines.

Townsend's Big Eared Bat (*Plecotus townsendii*), SP/SD

Suitable habitat exists for this species along the proposed seismic lines. Surveying, drilling, shooting, and recording activities would result in displacement, abandonment of roosts sites, and mortality of young and adult Townsend's big-eared bats, if they are present along the proposed lines.

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Northern River Otter (*Lutra canadensis*), SP/SD

Suitable habitat exists for this species along the proposed seismic lines. Surveying, drilling, shooting, and recording activities would result in temporary displacement of the Northern river otter, if they are present along the proposed lines. However, this species is highly mobile, and river otters would likely be able to avoid the activities, and would return to the area after the activities are completed.

Sage Grouse (*Centrocercus urophasianus*), SP/SD

Greater sage-grouse leks and nesting habitat do occur within the project area and would be crossed by seismic UU-02, 06, 07, 14, and 17. No drilling and no explosives would be detonated within greater sage grouse habitat (suitable habitat within 2.0 mi of an active lek) during the breeding and nesting season of March 1 to June 15.

Lewis' Woodpecker (*Melanerpes lewis*) SP/SD

Suitable habitat exists for this species along the proposed seismic lines. Surveying, drilling, shooting, and recording activities would result in temporary displacement of the Lewis' woodpecker, if they are present along the proposed lines. However, Lewis' Woodpeckers nest in cavities of tall trees, which would not be disturbed.

Common yellowthroat (*Geothlypis trichas*), SP

Suitable habitat exists for this species along the proposed seismic lines. Surveying, drilling, shooting, and recording activities would result in displacement during the breeding season, nest parasitism by brown-headed cowbirds, and nest destruction by foot travel for the common yellowthroat, if they are present in the project area. However, avoidance of seismic activity within 300 ft of a riparian area, or within 500 ft of the Green or White Rivers would decrease the disturbance along suitable habitat for the common yellowthroat.

Utah Milk Snake (*Lampropeltis triangulum taylori*), SP Great Plains Rat Snake (*Elaphe guttata emoryi*), SP/SD

Suitable habitat exists for these species along the proposed seismic lines. Surveying, drilling, shooting, and recording activities would result in the collapsing of some burrows or crushing of debris piles and subsequent mortality of individual Utah Milk Snake or Great Plains rat snakes, if they are present in the project area. However, the Utah milk snake and the Great Plains rat snakes are primarily nocturnal, which lessens the likelihood of these species being impacted by the project. If seismic lines are subsequently used as OHV trails, burrow destruction and associated mortality may continue in these areas beyond the length of the proposed project.

Bluehead Sucker (*Catostomus discobolus*) SP

Suitable habitat for bluehead sucker exists in rivers and streams within the proposed project area. No project related impacts are expected to this species because flowing water sources would be avoided by 500 ft.

Flannelmouth Sucker (*Catostomus latipinnis*) SP

Suitable habitat for flannelmouth sucker exists in rivers and streams within the proposed project area. No project related impacts are expected to this species because flowing water sources would be avoided by 500 ft.

4.5.1.3 Plant Species

No OHV or ATV activities would occur in *Schoenocrambe argillacea* populations or suitable habitat following completion of the project due to the steepness and roughness of the terrain. In addition, helicopter methods would be used to drill the shot-holes instead of buggies, therefore, no trails would be created. Off road activities would be possible on sites for the remaining two species where buggy and truck drill rigs would be used. Habitat for *Schoenocrambe suffrutescens*, *Penstemon scariosus* var. *albifluvi*, *Penstemon grahamii* and *Sclerocactus glaucus* would be susceptible to OHV due to the moderate slope ranges and general lack of vegetation. *Schoenocrambe suffrutescens* habitat occurs on seismic 1, 4 and 15. These populations are small and travel through the site with buggies would leave

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tracks that could lead to travel by recreation ATVs. OHV use has been identified in the recovery plans for *Sclerocactus glaucus* (FWS, 1990) and *Schoenrambe suffrutescens* (FWS, 1994) as a threat to the species. Franklin (1994) found motorcycle tracks on one population of *Penstemon scariosus* var. *albifluvis* near the White River. Most of the sites for *Penstemon grahamii* are open and steep and with current uses of hunting receive incidental use. Creating trails cross country with the seismic activities would increase access to TEC populations and use for hunting and recreation routes resulting in loss of plants and degradation of habitat, since these areas are generally open and attractive to use. Crossing of habitat with ATVs in traveling for seismic activities and the associated travel and drilling with the truck and buggy rigs could result in the loss of plants that are dormant, on unstable slopes, of small size missed in surveys during drought conditions, obscure in the spring in seedling stages, or covered in the winter.

Historically, the *Schoenrambe* species were more contiguous and human activities of building stone collection, grazing, and mineral extractions have degraded and fragmented the species habitat (FWS 1994). The current project would not lead further to the fragmentation of TEC plant habitat. The species that occur in the project area are scattered disjunct populations that are naturally fragmented by the geology of the area and their distinct habitat preferences. Shultz (1979) noted differences in the color of vegetation and corollas in *Penstemon grahamii* and attributed it to generic variation due to the isolation of the plant at different habitat locations. The seismic line areas are 10 ft and are too small an area to create barriers that would disrupt the population processes of pollination, genetic isolation, and seed dispersal generally associated with fragmentation of a population.

Pollinators for the Penstemons are unknown but they are likely habitat and flower generalists, and common over the area, as plants occur and produce seed over a broad landscape from Colorado to Sand Wash at the west side of the District. Three ground nesting bees were found in association with *Schoenrambe suffrutescens* (FWS, 1994). *Sclerocactus glaucus* uses bees, flies, beetles, and ants as pollinators (FWS, 1990). The work on the seismic lines would impact a small portion of the pollinator population. Temporary loss of habitat for ground nesting pollinators due to compaction could occur on approximately 381 acres within the actual seismic routes. The impact to TEC plant seed production would be very low as since the habitat for plants and associated pollinators are located outside the seismic line areas.

Under the proposed applicant-committed environmental protection measures (2.1.5.9) "surveys for TEPCS species would be conducted by qualified personnel funded by Veritas at the direction of the BLM

on a site-specific basis depending upon known or possible occurrence of each species along each individual line and, should TEPCS species be found, avoidance would be conducted at the direction of the BLM". Avoidance of plants found on a given year would not adequately prevent effects to species since plant numbers may vary with moisture conditions of the year and habitat would be impacted that would directly and indirectly affect the plants.

In dry years like 2002 plants rely on dormancy and root reserves to survive till conditions change. Survival rates of individuals would be dependent on severity and duration of the dry conditions and the species. Shultz (1979) suggests this is a survival mechanism for *Schoenocrambe argillacea* and is probably the same for *Schoenocrambe suffrutescens*, and *Penstemon scariosus* var. *albifluvis*. In addition *Schoenocrambe argillacea* can be quite obscure in all but the wettest times (Shultz 1979) making surveys difficult seasonally. In reviewing populations of *Penstemon* spp. the summer of 2002 for a challenge cost share agreement with BLM Sylvia Torti of Red Butte Gardens could not find any plants of *Penstemon grahamii* on the few sites she visited. In visiting the type locality of *Penstemon scariosus* var. *albifluvis* Sylvia did not find any plants on the site. In the previous year, which was dry through the summer, but had spring moisture, Sylvia and Robert Specht of the BLM found numerous plants on the site that had produced seed. Trying to use surveys to avoid plants on known habitat and potential habitat would result in the loss of plants.

The pattern of moist and dry seasons and long periods of dry seasons may shift population locations on designated suitable habitat. Franklin (1995) found the population in the habitat for EO006 that occurs on line 15 about a quarter of a mi from the population delineation done by Sultz in 1979. *Penstemon grahamii* also shows shift in suitable habitat and numbers associated with seasonal conditions.

*Penstemon grahamii* is a short lived perennial and long durations of dry conditions would reduce population numbers. Seed banks are probably the survival mechanism for this species. Shultz (1979) found seedling of *Penstemon grahamii* by digging in the shale litter on the surface of habitat. Seedlings were found in thick groups near bases of mature plants. Field observations on the type locality of *Penstemon scariosus* var. *albifluvis* by Robert Specht in 2001 found plants and seedlings within the portions of the site with the shale surface fragments undisturbed. Livestock trails and the area adjacent to the trails where the shales were disturbed and moved off the surface were devoid of plants.

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*Clerocactus glaucus* shrinks and swells with moisture conditions seasonally. Field observations showed *Sclerocactus glaucus* swelling with spring moisture in late March through April and shrinking in the fall. The old and large individuals remain above the surface, the young and smaller stature plants shrink to the surface or below and become covered with the surface pebbles and fines that are typical of the habitat, and become obscure. Seedlings and first year plants of this species are extremely hard to see. Travel over habitat or placement of drill rigs on habitat would crush and kill plants.

The activities of drill rig and ATV travel and the associated drilling with the truck and buggy rigs and helicopter drill rigs in the habitats for TECP species would result in the loss of plants that are dormant, on unstable slopes, of small size and missed in surveys, or obscure in the spring in seedling stages or covered in the winter.

Travel over the shales on suitable habitat and the disturbance of the surface fragment cover would result in the loss of seedlings and young plants of *Schoenocrambe suffrutescens*. The effects could be short or long term due to weathering conditions and if the areas return to the original state. On the steeper slopes traveling would change the surface composition pattern of the shale surface layers and scree creating bare ground areas where habitat for seeding establishment would be decreased until weathering returned the habitat to its original condition. Compaction of soils with travel would change the seedling and loose shale relationship for these species and remove these sites for establishment of plants until frost heaving and weathering return the site to the original state. Loss of these areas would be critical to the species on small habitat areas especially for *Penstemon grahamii* due to its genetic isolation and inability to colonize new habitats. Shultz (1979) noted differences in the color of vegetation and corollas in *Penstemon grahamii* and attributed it to generic variation due to the isolation of the plant at different habitat locations.

Helicopter Drilling on habitats for *Schoenocrambe argillacea* would be in an area with an estimated population of 800-1000 individuals (Franklin 1995). Drilling would be on steep slopes and be within the primary habitat zone below the Uintah cap rock. The older larger plants occur in protected and stable sites under the caps, while the younger occur on the unstable slopes (Shultz 1979). Drilling on the slopes would disturb 15 sites in these areas. Disturbance to the stable vegetated areas could result in young plants succumbing in slides and direct loss of an estimated 30 plants based on 2 /site in prime habitat.

Commutative Effects: Drought over the last few years has limited vegetation on native ranges and the same is probably true for TECP plant species, especially since these species are on xeric and low productivity sites to begin with. 2000 and 2001 had moist spring but a dry summers seed but 2002 was dry from spring to late summer. Seed production and plant occurrences for *Penstemon grahamii*, *Penstemon scariosus* var. *albifluvis*, *Schoenrambe suffrutescens* and *Schoenrambe argillacea* would be low to none. *Sclerocactus glaucus* flowered this year but at a lower occurrence that last year, insect levels were a lot lower in the Book Cliffs and Myton Bench. With seed production low, potential for new plants would be decreased. Loss of habitat would reduce the potential for plants to reestablish if they are lost this year to drought. Compaction on small habitat areas of these species would increase the likelihood of plants not becoming established. Wildlife and livestock uses in past years have been light. Observations on a *Penstemon scariosus* var. *albifluvis* site last year showed light use by livestock and moderate use on native ranges adjacent to the site. This year native range production was severely reduced. TECP plants that did come up would have been more susceptible to grazing by livestock, wild horses and wildlife. Again reducing plant vigor and seed production. Plant densities on these sites are probably reduced from drought conditions. Coupled with low seed production populations may be severely reduced over past numbers. If dry conditions continue, additional loss of habitat through disturbance and compaction would further reduce the population ability to recover in size or numbers.

Major oil and gas production is occurring primarily in the Redwash, Wonsites Valley, Wild Horse Bench, Little Desert and Myton Bench. Current activity in TESP habitat in the project area is low. Most of the area is leased and company emphasis in drilling could change. The effects of what the information gathered by this project is not predictable. Oil and gas activities are still under the Book Cliffs RMP and are being considered in the new RMP.

Avoiding TESP species as proposed under the proposed applicant-committed environmental protection measures (2.1.5.9) "should TEPCS species be found, avoidance would be conducted at the direction of the BLM" results in determination of "may adversely affect the species or it's habitat" for the listed species *Sclerocactus glaucus*, *Schoenrambe suffrutescens*, and *Schoenrambe argillacea*; and a "may affect individuals, but not likely to result in a trend toward Federal listing" for *Penstemon scariosus* var. *albifluvis* and *Penstemon grahamii*.

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**4.5.2 No Action Alternative**

Under the no action alternative, there would be no direct disturbance or indirect effects to T&E fishes or fish habitat from seismic activities. Current land use trends in the area would continue, including increased industrial development, increased OHV traffic, increased recreational use for boating (float and motorized), bird watching and sight seeing. Fourth year drought conditions are resulting in reduced water flows and contributing to the decline in population numbers.

Under the no action alternative, there would be no direct disturbance or indirect effects to bald eagles or bald eagle roost sites from seismic activities. Current land use trends in the area would continue, including increased industrial development, increased OHV traffic, increased recreational use for hunting, bird watching and sight seeing. A fourth year of drought conditions has resulted in low forage quality and limited prey availability, these conditions are contributing to a decline in population numbers.

Under the no action alternative, there would be no direct disturbance or indirect effects to southwestern willow flycatcher or flycatcher habitat from seismic activities. Current land use trends in the area would continue, including increased industrial development, increased OHV traffic, increased recreational use for boating (float and motorized), bird watching and sight seeing. A fourth year of drought conditions has resulted in low forage quality and limited prey availability. These conditions are contributing to a decline in population numbers.

Under the no action alternative, there would be no direct disturbance or indirect effects to western yellow-billed cuckoo or cuckoo habitat from seismic activities. Current land use trends in the area would continue, including increased industrial development, increased OHV traffic, increased recreational use for boating (float and motorized), bird watching and sight seeing. A fourth year of drought conditions has resulted in low forage quality and limited prey availability, these conditions are contributing to a decline in population numbers.

Under the no action alternative, there would be no direct disturbance or indirect effects to Mexican spotted owl or owl habitat from seismic activities. Current land use trends in the area would continue, including increased industrial development, increased OHV traffic, increased recreational use for hunting, bird watching and sight seeing. A fourth year of drought conditions has resulted in low forage quality and limited prey availability, these conditions are contributing to a decline in population numbers.

Under the no action alternative, there would be no direct disturbance or indirect effects to mountain plover or mountain plover habitat from seismic activities. Current land use trends in the area would continue, including increased industrial development, increased OHV traffic, increased recreational use for hunting, bird watching and sight seeing. A fourth year of drought conditions has resulted in low forage quality and limited production. These conditions are contributing to a decline in population numbers.

Under the No Action alternative, the processes that have lead to the near extermination of the black-footed ferret would continue at the present level or gradually increase. These include: disease, land use conversion, prairie dog control and other land use changes.

Under the no action alternative, there would be no direct disturbance or indirect effects to Utah sensitive species or their habitats from seismic activities. Current land use trends in the area would continue, including increased industrial development, increased OHV traffic, increased recreational use for hunting, bird and mammal viewing and sight seeing. A fourth year of drought conditions has resulted in low forage quality, limited production, and low prey availability. These conditions are contributing to a decline in population numbers for many species.

Under the No Action Alternative impacts to TECPS plant species would continue at approximately present levels. Oil and gas production would occur at rates allowed in the RMP, surveys would be conducted for individual projects and TEC populations and habitat would be avoided. ATV use would increase at current rates with current roads and trails and new roads with oil and gas production. Populations of TEC plants would still be occasionally damaged by the use of ATV's and plants lost. Building stone activities would increase with demand for the stone.

#### **4.5.3 Mitigation**

Complete mitigation for bald eagle would be avoidance of winter roost areas from November 1 to March 15 and active nests from January 1 to August 15.

Complete mitigation for southwestern willow flycatcher would be avoidance of any flowing stream such as the Green River, White River, Bitter Creek, or Willow Creek by 500 ft and avoidance of any wetland or riparian area by 300 ft as proposed by the Applicant in Section 2.1.5.7.

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Complete mitigation for western yellow-billed cuckoo would be avoidance of any flowing stream such as the Green River, White River, Bitter Creek, or Willow Creek by 500 ft and avoidance of any wetland or riparian area by 300 ft as proposed by the Applicant in Section 2.1.5.7.

Complete mitigation for Mexican spotted owl would be seasonal avoidance for the 10 mi of potential breeding habitat identified along the seismic lines from March 1 - August 31.

Complete mitigation for mountain plover would result from seasonal avoidance of the 8 mi of habitat from May 1 - June 15.

The prohibition of seismic exploration between 1 May and 15 July would completely mitigate the potential for disruption of breeding activities and the subsequent decrease in kit (young ferret) production for the year; however, the potential for direct mortality from blasting outside the timing restriction would still exist. Additional data is needed to confirm a safe setback distance (from black-footed ferret burrows) for any drilling and detonation activities within the PMZ. This distance would be determined by conducting test shots using varying charge amounts and distances to prairie dog holes and monitoring the results of these test shots. Complete mitigation would be achieved incorporating study results regarding safe setback distances as buffer zones around prairie dog holes that may be occupied by ferrets. These tests would be conducted under the direction of scientists from the BLM, the Service and the UDWR. After the buffer is established, ferret searches would (following established protocol) be conducted no earlier than one week before blasting would begin, within the newly established buffer distance, along the length of the seismic line in the PMZ. Implementation of these safe setback distances would also satisfy the conditions outlined in the Black-footed ferret amendment to the Book Cliffs RMP involving surface and subsurface disturbing activities (EA No. UT 080-1999-02). Under the No Action Alternative, ferret recovery could be expedited by preserving prairie dog habitat and reintroducing ferrets into areas previously occupied by the animal.

The Applicant-committed Environmental Protection Measures and other mitigation requirements for TEC species would reduce impacts to many of the Utah sensitive animal species discussed.

Avoidance of delineated suitable habitat and populations would be done instead of individual plants. Potential habitat areas would be surveyed by trained botanists and certified by BLM. Occupied and suitable habitat would be delineated and avoided.

Surveys for *Penstemon grahamii* and *Penstemon scariosus* var. *albifluvis* are not possible in 2002 due to drought. Surveys for these species need to be done starting in 2003 from May through September. Survey for shale habitats may be done in 2002 on the routes until snowfall, and these areas avoided.

Surveys for *Sclerocactus glaucus* or may be conducted in 2002 until November and starting in 2003. 5 ft wide transects on potential habitat would be done to sight plants. Populations and suitable habitat would be delineated and avoided. Surveys for suitable habitat may be surveyed for until the snow cover and these areas avoided.

Implementation of the mitigation would result in a determination of "may affect but not adversely affect" for the listed species *Sclerocactus glaucus*, *Schoenrambe suffrutescens*, and *Schoenrambe argillacea*, and a "may affect individuals, but not likely to result in a trend toward Federal listing" for *Penstemon scariosus* var. *albifluvis* and *Penstemon grahamii*.

## **4.6 CULTURAL RESOURCES**

### **4.6.1 The Proposed Action**

Veritas has committed to avoiding/mitigating known sites as well as sites discovered during Class III surveys (see Section 2.1.5.4); however, the passage of rubber-tired vehicles could result in some undiscovered cultural resources inadvertently being damaged or moved to the extent that their context would be altered. The subsequent use of the seismic lines for ORV use would increase the opportunities for damage to and vandalism of cultural resources.

### **4.6.2 The No Action Alternative**

Under the No Action Alternative cultural resources would continue to be susceptible to vandalism, and those cultural resources on the surface would be exposed to natural geomorphic processes and damage from foot and vehicle traffic. The Class III surveys would not be conducted and the knowledge they would provide regarding cultural resources in the project area would remain unknown.

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### **4.6.3 Mitigation**

None.

### **4.6.4 Unavoidable Adverse Impacts**

None.

## **4.7 WILDERNESS**

### **4.7.1 The Proposed Action**

#### **4.7.1.1 Wilderness Inventory Areas**

Heli-portable drilling would be the only drilling method used in WIAs. No vehicles other than ATVs would be used in these areas except on existing routes. One seismic line (UU-16) would cross approximately 4.0 mi of the Desolation Canyon WIA. This would result in approximately 64 drill holes disturbing 832 ft<sup>2</sup>, or 0.02 acre (0.00002% of the 96,714-acre area). Four seismic (UU-2, UU-03, UU-09, and UU-10) would cross approximately 9.0 mi of the White River WIA. This would result in approximately 144 drill holes disturbing 1,872 ft<sup>2</sup>, or 0.04 acre (0.00032% of the 13,500-acre area). The effects of heli-portable drilling would be the same when used in each WIA; therefore, the discussion that follows applies to all two WIAs.

#### **Wilderness Characteristics**

Size. No roads would be constructed and no rights-of-way would be issued in the WIAs under this alternative; therefore, the Proposed Action would not reduce the size of any of the two WIAs.

Naturalness. Naturalness would not be degraded by the Proposed Action. Heli-portable drilling would be used--helicopters would be used to transport workers, drills, and cables/geophones. Cables and geophones would be walked into the area. ATVs would be used for trouble-shooting, but no other wheeled vehicles would be used except on existing routes. A recent BLM compliance audit of a similar

2-D seismic project completed within the proposed project area concluded that in the area of the heli-portable drilling it was difficult to locate where work had been performed one week after project completion. Footprints by workers and small areas (<3 ft diameter) of scattered subsurface cuttings where drilling occurred were all that was noticeable.

Solitude. Outstanding opportunities for solitude would be temporarily degraded during the drilling and shooting/recording portions of the Proposed Action, when there would be increased human activity along the proposed seismic line, as well as noise from drilling, ATVs and helicopters. The use of helicopters to access WIAs and areas of rough or inaccessible terrain would result in some additional noise for the short-term while the helicopters would be in use. Estimates of noise levels generated by Eurocopter AS 350B2 and AS 350BA helicopters are presented in Table 4.1. These values are Effective Perceived Noise Levels (EPNL), which are used by the Federal Aviation Administration and similar international agencies to set noise standards for most aircraft. EPNL values are often substantially higher than corresponding values of time-averaged, A-weighted decibel values (dBA). The distances noted in Table 4.1 are straight-line distances, so as a helicopter's altitude increases the horizontal distance to a particular noise level on the ground would decrease. In addition, when a helicopter would be operating near the ground there would likely be additional attenuation of noise levels resulting from ground absorption, topographic barriers, and/or vegetation. The highest noise emission level for the AS 350B2-91.4 EPNdB—occurs on approach. Reducing this level to 65 EPNdB would require a distance of 1.93 mi, conservatively assuming no topographic, vegetative, or atmospheric attenuation. The AS 350BA generates its greatest noise on take-off at 93.2 EPNdB, and would require 2.38 mi to reduce this level to 65 EPNdB. Attenuating overflight levels to 65 EPNdB would require 1.25 mi for the AS 350B2 and 1.14 mi for the AS 350BA. A noise level of approximately 65 EPNdB would be perceived from a car operating at a distance of 100 ft from the listener and would be considered between a "quiet" and "moderate" sound level. This would be an increase in noise compared to existing noise levels in WIAs of an estimated 19-39 dBA, raising the existing "quiet" noise levels to "moderate" to "very loud", depending upon the distance from the helicopter and, to a lesser extent, atmospheric conditions. Therefore, the use of helicopters in the vicinity of a WIA for the several days required to drill and shoot a line would degrade solitude for that period of time.

Table 4.1 Helicopter Noise at Various Distances (based on International Civil Aviation Organization certification testing).

Helicopter Type	Decibel Level (EPNdB) at Various Distances		
	0.25 mi	0.5 mi	1.0 mi
<b>AS 350 BS</b>			
Take Off	81.2	75.1	69.1
Approach	82.8	76.7	70.7
Overflight	79.0	72.9	66.9
<b>AS 350 BA</b>			
Take Off	84.6	78.5	72.5
Approach	82.7	76.6	70.6
Overflight	78.2	72.1	66.1

In Desolation Canyon WIA it is estimated that helicopters would be operating on approximately 4 days; in White River WIA helicopters would be operating on approximately 30 days (this includes the UWC-proposed wilderness additions to the WIA).

Primitive and Unconfined Recreation. Outstanding opportunities for primitive and unconfined recreation would be degraded by human activity in the immediate vicinity of the line and during the time that drilling and shooting/recording would occur. Helicopter noise would impact much of the WIAs during the time helicopters would be operating.

Supplemental Values. Supplemental values for wildlife would be temporarily affected due to temporary displacement of some wildlife species. Impacts to soils, vegetation, cultural resources, and TECPS species would not be noticeable due to the use of heli-portable drilling.

Overall, implementation of the Proposed Action would result in impacts to WIAs that would be short-term and would not degrade wilderness characteristics so as to affect the potential of any of the two WIAs to be established as WSAs or Wilderness Areas.

#### 4.7.1.2 UWC-Proposed Wilderness

Any of three kinds of drilling equipment could be used in the UWC-proposed wilderness units: 1) a truck-mounted conventional drill would be used in open and relatively flat terrain; 2) buggy-mounted drills would be used in rougher terrain but still accessible to wheeled vehicles (buggies are equipped with large-diameter balloon tires to minimize disturbance to soils and vegetation); and 3) heli-portable drills would be used in terrain too steep and rough for access by truck- or buggy-mounted drills and other areas where ORVs are prohibited. The determination as to which method would be used in a given area would be made during the initial survey of each seismic line when the terrain would be evaluated; however, based on a knowledge of the terrain in the UWC-proposed wilderness units it is likely that most of the seismic work would utilize buggy-mounted drills or heli-portable drilling. The following impact analyses include disturbance estimates for all three drilling techniques--truck, buggy, and heli-portable.

Three seismic (UU-01, UU-03, and UU-07) would cross approximately 7.4 mi of the Lower Bitter Creek UWC-proposed wilderness unit and would require 125 shot-holes. Four shot-holes would be drilled with truck-mounted drills and 81 shot-holes would be drilled with buggy-mounted drills. Heli-portable drilling would be used to drill the remaining 40 shot-holes. Total disturbance would be approximately 6.4 acres (0.06% of the 11,543-acre area). One seismic line (UU-08) would cross approximately 7.0 mi of the Bitter Creek UWC-proposed wilderness unit. Heli-portable drilling only would be used, resulting in 112 drill holes disturbing 1,456 ft<sup>2</sup>, or 0.03 acres (0.00009% of the 36,870-acre area). Four seismic (UU-02, UU-08, UU-10, and UU-13) would cross approximately 7.5 mi of the White River UWC-proposed wilderness unit. Six of the 121 shot-holes would be drilled with a truck-mounted drill, disturbing approximately 0.5 acre, and the remaining 115 holes would be heli-portable drilled, disturbing 0.3 acre. Total disturbance would be approximately 0.8 acre. The effects of each type of drilling would be the same when used in each UWC-proposed wilderness units; therefore, the discussion that follows applies to all UWC-proposed wilderness units.

#### Wilderness Characteristics

Size. No roads would be constructed and no rights-of-way would be issued in the WIAs under this alternative; therefore, the Proposed Action would not reduce the size of any of the UWC-proposed wilderness.

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Naturalness. In areas where heli-portable drilling would be used, naturalness would not be degraded by the Proposed Action. Helicopters would be used to transport workers, drills, and cables/geophones. Cables and geophones would be walked into the area--no vehicles other than ATVs would be used, except on existing routes. ATVs would be used for trouble shooting during recording. As mentioned earlier (Section 4.4.1.1), a recent BLM compliance audit on a similar project in the same general area reported that in the area drilled using heli-portable techniques it was difficult to locate where work had been performed. Footprints by workers and small areas (<3 ft in diameter) of subsurface cuttings where drilling occurred were all that was noticeable. This observation was made 1 week after seismic exploration had occurred.

In areas where buggy-mounted drills would be used, there would be shallow wheel ruts caused by the wide tires of the buggies, as well as broken brush and some small broken trees. Soils would be normal in appearance by the following year after rains, wind, and winter snows naturalize the soils, although any disturbed biological soil crusts would require 15 to 100+ years to completely recover (see Section 4.1.1). Broken vegetation would require an estimated two or three growing seasons before growth naturalizes the disturbed vegetation. This short-term disturbance of soils and vegetation would be limited to those portions of the UWC-proposed wilderness units traversed by vehicles, and would be a temporary impact to the natural character of that portion of the UWC-proposed wilderness units.

In areas where truck-mounted drills would be used, impacts would be similar in kind and quantity to those associated with buggy-mounted drills--short-term and limited to the portion of the seismic lines traversed by vehicles. Although trucks are heavier than buggies, they could only be used on relatively flat, tree-free areas with appropriate access.

Naturalness would be affected if seismic routes used by truck- or buggy-mounted drills were subsequently used by ORVs and obvious damage to soils and vegetation were to occur. Approximately 50% of the BLM lands in the Book Cliffs Resource Area are open to ORV use, whereas the other 50% is restricted in some way, or closed (BLM 1984). Many restrictions are seasonal, and serve to protect various resources, including cultural, recreational, and wildlife values, wild horses, and watersheds. ORV use in much of the Book Cliffs is dominated by hunters and antler gatherers. Hunter use peaks in late summer to early winter, and big game hunters using ORVs often take advantage of trails to locate and/or retrieve big game animals. The number of big game hunters in the area is limited by the Utah Division of Wildlife Resources by restricting the number of licenses issued. Following hunter use, the

trails are subjected to the storms of winter and early spring that obliterate tracks and other evidence of human activity and encourage new vegetative growth. There are areas of more intensive ORV use, such as in the vicinity of Fantasy Canyon (Section 12, T9S, R22E). It is likely that in areas such as this any new trails created by seismic exploration would be utilized as ORV trails. This area is relatively flat and treeless as compared to the higher elevations to the south, and presently has more oil and gas development with the more intensive road network that accompanies such development.

Solitude. Outstanding opportunities for solitude would be degraded during drilling and shooting/recording activities when there would be increased human activity along the proposed seismic lines, as well by noise from helicopters. This would be true regardless of the drilling method used. The use of helicopters to access UWC-proposed wilderness units and areas of rough or inaccessible terrain and to assist in laying transporting cables and geophones would result in some additional noise for the short-term while the helicopters would be in use (see discussion of helicopter noise in Section 4.7.1.1). Solitude would be directly affected due to increased noise and human activity if seismic routes used by truck- or buggy-mounted drills were subsequently used by ORVs. Helicopter noise would disturb solitude in the UWC-proposed additions to the White River WIA on approximately 30 days (this includes exploration in the WIA as well as in the UWC proposal); on approximately 5 days in Lower Bitter Creek; and on approximately 9 days in Bitter Creek.

Primitive and Unconfined Recreation. Outstanding opportunities for primitive and unconfined recreation would be degraded by human activity in the immediate vicinity of the line and during the time that drilling and shooting/recording would occur. Helicopter noise would impact much of the WIAs during the time helicopters would be operating. Primitive and unconfined recreation would be indirectly affected due to increase in motorized recreational activities if seismic routes used by truck- or buggy-mounted drills were subsequently used by ORVs.

Supplemental Values. Supplemental values would be temporarily affected by the Proposed Action because of short-term impacts to soils and vegetation and temporary displacement of some wildlife species. Supplemental wilderness values would be indirectly affected due to increased impacts to soils and vegetation, disturbance to wildlife, and increased human activity if seismic routes used by truck- or buggy-mounted drills were subsequently used by ORVs.

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Overall, implementation of the Proposed Action would result in direct impacts that would be minimal and short-term and would not degrade wilderness characteristics so as to affect the potential of any of the three UWC-proposed wilderness to be established as WSAs or Wilderness Areas. Wilderness characteristics on portions of the UWC-proposed wilderness areas would be indirectly affected if seismic routes used by truck- or buggy-mounted drills were subsequently used by ORVs.

#### **4.7.2 No Action Alternative**

Under the No Action Alternative impacts to wilderness would continue at approximately present levels and these impacts would include additional disturbance from oil and gas exploration and development, mining, and ORV use.

#### **4.7.3 Mitigation**

All shot-holes in UWC-proposed wilderness units would be drilled with heli-portable equipment to minimize disturbance to soils and vegetation and to prevent future use of seismic lines as ORV trails. Over time, wilderness values would be completely restored through natural processes.

### **4.8 WEEDS**

Power washing of vehicles and equipment prior to coming on the proposed project area would remove the threat of noxious weeds coming into the area from infested sites in Uintah and Duchesne County and exotic and noxious species coming in from other counties and States where the crews have been working. Noxious weed sites occur on two, six and thirteen. These sites are currently being sprayed to control the weed species. Travel through the area could transport seed produced this year and spread the infestations.

Helicopter fuel and supply sites, staging and storage areas are planned for on existing surface disturbance sites and roads. These sites were not identified in the project map site. Noxious and invasive annuals could be on these sites. Equipment stored on these sites and transported from helicopter sites, and vehicles could transport seed to the seismic lines and start new infestations.

Pull-offs onto road edges with equipment or parking on disturbed areas in route to seismic line could pick up seeds and transport them to seismic lines.

#### **4.8.1 Mitigation**

Weed books would be supplied to the seismic crew to look for unknown sites of noxious weeds. Weed sites on lines would be evaluated prior to seismic activity to see if seed potential is present and the areas monitored for new infestations. Sites found in lines would be mapped and that portion of line monitored and weed control measures applied at appropriate time. An evaluation of staging areas would be done to determine weed conditions. Noxious weed sites would not be used. Maps of current infestations would be provided and these areas avoided.

The operator could control any noxious weed outbreaks through mechanical and chemical means should it be determined that such outbreaks result from the operator's activities in the project area.

#### **4.8.2 Unavoidable Adverse Effects**

Annual weed species may occur on disturbed areas but would be at the rate currently existing in the project area. Cheatgrass occurs throughout the area now.

### **4.9 RECREATION**

The crushing of some of the brushy vegetation, by Veritas equipment especially in the higher elevations, could lead to subsequent use of ATV's and possible new travel routes, however because the seismic lines may traverse diagonally up or down some of the less than 40% slopes, hunters or recreationists still may not find this type of travel neither conducive nor enjoyable to their travel. With 2/3 of the project area located in scattered juniper sagebrush, it is most likely that once Veritas equipment moves through the area that in some instances, subsequent use by some other type of OHV would follow. Some of that disturbance could lead to identifiable travel routes and therefore some disturbance and perhaps some mortality of special status plants. However, most of the OHV use which occurs in the lower portion of the Book Cliffs remains on existing travel routes because people are either looking for loops, traveling from point-to-point, or searching for wildlife which would or would not be dependent on portions of previously disturbed areas by Veritas equipment.

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The 17 seismic lines, which Veritas proposes, would intersect numerous primary (Class B Uintah County maintained roads), secondary and tertiary travel routes. The range of intersecting points varies from 13 intersecting points along a 30-mi seismic line to as many as 35 intersections in 18 mi. It is inevitable that OHV use would occur off and onto some of these intersecting points.

Hunters who have received hunting tags for either the limited entry bull elk or buck deer would have a diminished quality experience if Veritas activities either relocated animals prior to their hunt or during it. The hunters then would have to relocate and look for both new areas to hunt in and then to try and locate the larger bucks and bulls.

#### **4.9.1 Mitigation**

A map with narrative information on the timing of the activity would be posted on three kiosks in the Book Cliffs namely at Buck Canyon, Rainbow and Duck Rock.

#### **4.9.2 Unavoidable Adverse Effects**

It is most likely that once Veritas equipment moves through the area that in some instances, subsequent use by other types of OHV would follow. Some of that disturbance could lead to identifiable travel routes and therefore some disturbance and perhaps some mortality of special status plants.



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## 5.0 REASONABLE FORESEEABLE DEVELOPMENT AND CUMULATIVE IMPACTS

The project area has previously been affected by road development, oil and gas development, and Gilsomite mining. There are approximately 2,869 oil and gas wells in the project area, and approximately 5,000 wells in Uintah and Duchesne Counties. Livestock have grazed the project area for approximately 100 years. The area is utilized by recreationists--especially hunters, hikers, river floaters, and wilderness enthusiasts. All of these activities have had impacts on natural resources in the project area. Cumulative impacts and scenarios for expected oil and gas exploration and development in the area are described in EA UT-080 1997-51, Wexpro Co. Island Unit (BLM 1997); EA UT-080 1998-01, Costilla Energy, Inc. Hill Creek Unit (BLM 1998); and EA UT-080 1999-32, EOG Resources, Inc. Chapita Wells Unit Infill Development (BLM 1999c). These documents are on file and may be reviewed at the BLM Vernal Field Office.

Reasonable foreseeable development in the project area includes numerous exploratory wells and development of two large oil and gas fields for which the BLM is currently preparing a NEPA document (Resource Development Group Natural Gas Project and Inland Resources). One additional proposal for geophysical exploration in the Book Cliffs has been received, and three to five such projects are anticipated to be proposed in the next 5 years. All future projects on public lands would require approval including preparation of site-specific NEPA documents with consideration of cumulative impacts.

Should the Proposed Action identify areas with a high probability of oil and gas resources, it is likely that proposals would be made to recover those resources; however, although such future proposals could utilize the data from the proposed geophysical study, they are speculative at this time and cannot be considered reasonable foreseeable developments or connected actions (previous decisions from the Interior Board of Land Appeals [IBLA] indicate that geophysical exploration and the drilling of a well would not be considered connected actions [see *Southern Utah Wilderness Alliance* 122 IBLA 165]).

Surface disturbance from the proposed cross-country geophysical operations would be a short-term impact when compared to the impacts from the other longer-term activities anticipated in the area. Cumulative impacts would primarily result in surface disturbance or the loss of vegetation. This would increase soil erosion. Impacts to biological soil crusts would take from 15 to 100+ years to recover, and increased wind and water erosion would occur during recovery. Loss of vegetation would be a minimal

impact to wildlife. Cultural and paleontological resources and sensitive status plant and animals and their habitat would be avoided. ORV use in the project area could increase in the future and would be occurring with or without the proposed action. Some ORV travel would follow seismic line routes, which would prolong recovery of soils and vegetation on portions of the lines. Mitigation has been developed to discourage use of seismic lines by ORVs. Wilderness characteristics in the Desolation Canyon, White River WIA, and Cripple Cowboy WIAs would continue to be affected by existing land uses, including grazing, recreation, and oil and gas development. Wilderness characteristics in the four UWC-proposed wilderness areas (or portions thereof) determined by BLM to potentially possess wilderness characteristics would continue to be affected by existing land uses, including grazing, recreation, and oil and gas development. Numerous oil and gas leases are located in these areas, and future development could affect wilderness characteristics that may occur at present.

When compared to the major developments in the area such as roads, Gilsonite mines, and oil and gas fields, cumulative impacts from the 381 acres of surface disturbance would represent 0.02% of the project area. Given past, present, and future uses, the proposed geophysical activity would not appreciably add to the impacts expected from mineral development, grazing, and recreation.

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## 6.0 INTENSITY OF PUBLIC INTEREST

The initial version of the Environmental Assessment was sent for a 30 day, public and agency comment period that ended on August 12, 2002. However, in response to various requests for an extension of the comment period, the closing date was extended to September 3, 2002.

On September 17, 2002, the Southern Utah Wilderness Alliance and Earth Justice filed a 60 day notice of intent to sue over violations of Section 7 of the *Endangered Species Act* for failure of BLM to consult with the U.S. Fish and Wildlife Service in regards to the Mexican spotted owl, clay-reed mustard, shrubby reed mustard, and Uinta Basin hookless cactus.

Copies of the EA were sent to a wide range of local, state and federal agencies that interface with public land issues. In addition, copies were sent to advocacy groups and oil and gas industry representatives. For general public use, the EA was made available in its entirety for review and comment on the Vernal Field Office internet home page. Local media releases indicated that over-the-counter copies were available at the BLM Vernal Field Office.

On June 19, 2002, the BLM met with and discussed the Veritas Uintah 2D project with the Northern Ute Tribal Business Committee. The Committee had no formal opinion of the project. In addition, at the start of the public review period letters with the EA enclosed were sent to nine tribes. They were the Hopi, Northern Ute, Shoshone-Bannock, Ely Shoshone, Southern Ute, Ute Mountain Ute, Navajo Nation, Duckwater Shoshone, and Shoshone Tribes. The Hopi and Southern Ute Tribes responded with comments.

The BLM received approximately 25,000 comment letters on the EA. BLM appreciates the public's involvement in this process by providing their input and recommendations. These comments offer recommendations ranging from approval to non-approval of the proposed action. A majority of these comments express non-support of the project.

## 6.1 COMMENTORS

The following 29 organizations provided comments on the EA.

- BP America Production Company
- Center for Native Ecosystems
- Congressman Maurice D. Hinchey
- Crew Concepts, Inc.
- Environmental Protection Agency, Region 8
- EOG Resources, Inc.
- Hopi Tribe
- Independent Petroleum Association of Mountain States
- Mountain Defense League
- Mustang Fuel Corporation
- National Outdoor Leadership School, Rocky Mountain Branch
- National Trust for Historic Preservation
- Natural Resources Defense Council
- Petroleum Association of Wyoming
- Public Lands Advocacy
- Southern Utah Wilderness Alliance
- Southern Ute Indian Tribe
- State of Utah, Governor's Office of Planning and Budget
- State of Utah, SHPO
- State of Utah, Trust Lands Administration
- Thomasson Partner Associates, Inc.
- U.S. Geological Survey
- Uintah County Commission
- Utah Chapter of the Sierra Club
- Utah Environmental Congress
- Veritas DGC Land, Inc.
- Wasatch Mountain Club
- Washington Wilderness Coalition
- Wild Utah Project

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Essentially all comment letters, regardless of positions taken, addressed very specific resource issues. Very few of the letters merely expressed "votes" for or against the project. Of the many letters received, there was a striking consistency of issue concerns regardless of the writer's position on the merits of the project. Adequacy statements or technical opinions voiced concerns over the effects of the proposed action on areas containing wilderness values, cultural resources, cryptobiotic soils, future availability of oil and gas, threatened and endangered and special status plant and animal species. A reoccurring theme of these comments was that the BLM should be required to do an Environmental Impact Statement and a Statement of Adverse Energy Impact.

Corrections to the final EA have been made to be consistent with these comments. The following discussion summarizes comments on the adequacy of the issues analyzed.

## **6.2 CRYPTOBIOTIC SOILS AND OTHER SOIL ISSUES AND RESPONSES**

ISSUE Cryptobiotic soils, with only 381 acres of surface disturbance (0.02%), out of the 1.9 million acres of public land within the project area, impact would be minimal.

RESPONSE Section 4.1.1 has been expanded to analyze impacts to soil crust.

ISSUE Soil disturbances could be extensive before the 4-inch rut criteria for limiting vehicles is reached.

RESPONSE Section 4.1.1 has been expanded to include more analysis on the potential affects of rutting, and Section 4.1.3 has been expanded to mitigate rutting impacts.

ISSUE BLM did not analyze the impacts of damage to soil crusts to surrounding vegetation.

RESPONSE Section 4.2.1 has been expanded to provide more analysis of impacts to perennial plants/soil crusts relationship.

ISSUE The expected recovery rate as stated in the EA on cryptobiotic soils is contradictory.

RESPONSE Section 4.1.1 has been revised to reflect that the recovery rate of soil crusts in the project area is estimated to be 15 to 50 years for cyanobacterial crusts and 100+ years for lichens and moss.

ISSUE According to the information presented in 4.1.1, the mitigation at 4.1.3 requiring scarifying of compacted soils and raking of vehicles tracks would cause more damage than leaving biological crusts compacted in place.

RESPONSE Section 4.1.3 has been revised to provide the rationale for raking and scarifying of disturbed soils, in order to promote the recovery of disturbed biological crusts. Raking in from the sides of undisturbed soil crusts would place spores in the disturbed areas, thus reducing recovery time.

ISSUE The effects of burial of soil crusts need to be added to the analysis of cryptobiotic soils.

RESPONSE Section 4.1.1 was expanded to include the affects of burial of soil crusts.

ISSUE The location of cryptobiotic soils is not known, therefore a meaningful analysis cannot be made until an on-the-ground survey is made.

RESPONSE Impacts to cryptobiotic soils are discussed in Section 4.1.1, with the assumption that wherever the soils are present, the impacts would be the same.

ISSUE EA did not identify impacts to cryptobiotic soil crusts.

RESPONSE Section 4.1.1 has been expanded to include analysis of impacts to cryptobiotic soils.

ISSUE EA fails to discuss impacts from ORVs that would take place after the project is complete. EA must disclose the source of soil crust recovery data provided in the EA.

RESPONSE Section 4.1.1 discusses the impacts of subsequent use following the projects completion. Soil crust recovery data was derived from pers. com. between Roger Schoumacher, TRC Mariah Associates Inc., Laramie Wyoming and Jayne Belnap, Canyonlands Field Station, May 17, 2001, and other cited sources.

### **6.3 CULTURAL RESOURCES ISSUES AND RESPONSES**

ISSUE The EA inadequately identifies and analyzes indirect impacts to cultural resources.

RESPONSE The Applicant-Committed Environmental Protection Measures, Section 2.1.5.4 for Cultural Resources references indirect impact measures.

Information taken from the WesternGeco Horsepoint 3-D Seismic Exploration Project, EA #UT-080-2002-219 references recreation use in the Book Cliffs. The main recreation use of the Book Cliffs by the public is by hunters who use the area August through December of each year for a variety of big-game hunts. See Section 3.7, Recreation, for specific facts and figures. An estimated 700 permit holding hunters spend about 3500 hunter-days in the Book Cliffs. Supervision of this use is

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accomplished by federal and state agencies, that may have an effect on inappropriate use of the cultural resources in the Book Cliffs.

ISSUE Without complete survey of all 17 lines for cultural resources, BLM cannot make an informed decision under NEPA or to complete the Section 106 consultation under the *National Historic Preservation Act*.

RESPONSE The document has been changed to state the authority by which phased identification may be done. See Section 2.1.5.4 for this language.

The phased identification of properties may be done under the citation at 36 C.F.R. Part 800.4(b)(2), "Phased Identification and Evaluation." "Where alternatives under consideration or large land areas, or where access to properties is restricted, the Agency Official may use a phased process to conduct identification and evaluation efforts."

ISSUE This major energy development project should not be "fast-tracked," because of significant impacts to the natural and cultural resources.

RESPONSE The proposed action is not a major development project. See Section 1.3.2. The Notice of Intent to conduct geophysical operations of public lands was received on August 27, 2001. The Environmental Assessment for 2-D Seismic Exploration by Veritas DGC Land, Inc., Uintah County, Utah, UT-080-2002-21, was mailed out for public review July 10, 2002. The comment period deadline was August 12, 2002, but was extended to September 3, 2002.

ISSUE An alternative using magnetometer studies should be considered.

RESPONSE Magnetometers are mainly used in archaeological reconnaissance and surface surveys because remains create anomalies in the earth's magnetic field. Magnetometry would not be considered a viable alternative for locating oil and gas deposits, which in the Uinta Basin are generally located from 5000 to 8000 deep. Veritas is proposing to use current technology needed to obtain the desired data.

ISSUE EA fails to disclose if "existing routes" or staging areas have been "cleared" for cultural and biological resources.

RESPONSE Existing routes and staging areas are identified in the proposed action as pre-disturbed sites. These routes and staging areas were originally cleared for the appropriate resources prior to the original surface disturbance.

ISSUE EA fails to disclose if "existing routes" or staging areas have been "cleared" for cultural and biological resources.

RESPONSE Existing routes and staging areas would be cleared for biological resources prior to project initiation.

ISSUE The EA's use of "linear miles" to assess the scope of the proposed action is misleading. EA should forthrightly acknowledge that this proposed action would significantly change the character of the entire area.

RESPONSE As stated in Section 2.1 the total area determined to be directly disturbed is less than 1%. As analyzed in Section 4.0, the proposed action would result in temporary and short-term consequences.

ISSUE The archeological surveys for all lands that would be subject to cross-country travel is insufficient. A Class III archeological survey is needed in these areas as well as in areas used by recording trucks, ATV's using existing roads, trails, and helicopter landing pads.

RESPONSE The archaeological inventory reports by TRC-Mariah and Montgomery Archaeological Consultants' "Methodology" sections reflect that a Class III (100%) was conducted on all portions of the project within the Areas of Potential Effects (APE). As such, cross-country travel routes have also been inventoried for cultural resources.

#### **6.4 ENDANGERED SPECIES ACT ISSUES AND RESPONSES**

ISSUE There is no analysis on effects to white tailed prairie dogs and impacts to ferrets.

RESPONSE The amended EA has been expanded in Sections 2.1.5.9 and 3.5.1.15 to more fully address black-footed ferrets.

ISSUE Grant exceptions for mule deer crucial winter range, calving/ fawning range, active raptor nests, and bald eagle winter roost areas should not be granted.

RESPONSE Exceptions could be granted under certain circumstances. For instance, up to a 2-week extension for such seismic lines that extend into critical mule deer winter range may be granted if mule deer were not in that portion of the range, however that portion of the line would be monitored for animals movements. No exceptions would be allowed for active raptor nests and bald eagle winter roosting areas.

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ISSUE BLM cannot rely on one publication to avoid impacts to ESA-listed plants (Neese 1982).

RESPONSE The BLM did not rely on a single publication for analysis of potential, suitable and occupied habitat for TEC species and in identifying what species would occur in the project area. The bibliography has been revised to list appropriate data used.

ISSUE The EA fails to consider cumulative effects of oil and gas development on *Penstemon grahamii*.

RESPONSE Cumulative effects of this project are discussed in the revised Section 4.5.1.3 in the amended EA.

ISSUE Indirect and cumulative impacts to listed species must be analyzed.

RESPONSE Effects to listed species have been revised in Section 4.5.1.3 of the EA.

ISSUE BLM must engage in formal consultation, informal is insufficient.

RESPONSE The BLM has engaged in Section 7 consultation with the FWS on all listed and candidate species. Based on the information submitted in the Biological Assessment, FWS has reviewed the BA and responded with a biological opinion concurring with BLM's findings and recommended mitigation for this project.

ISSUE The project would violate BLM Instruction Memo 97-118 Guidance on Special Status Species Management (6840 Manual).

RESPONSE The BLM is in compliance with BLM Instruction Memo 97-118 and BLM policy under 6840–Manual--Special Status Species Management. The impacts to sensitive and candidate species identified in the edited EA would not lead to a need for listing.

ISSUE Substantial habitat fragmentation for wildlife and plants could result from project.

RESPONSE Habitat fragmentation has been addressed in the revised Sections 4.5.1 and 4.5.1.3 of the amended EA.

ISSUE Habitat for listed species would become more fragmented due to loss of individual, habitat for pollinators, and seed dispersal opportunities area lost.

RESPONSE Effects to pollinators and fragmentation of habitat are discussed in the revision of Section 4.5.1.3 in the amended EA. Based on the analysis, no fragmentation of habitat is anticipated.

ISSUE Noise levels and limited, small patches of undisturbed areas for escape for wildlife may impact ferrets and burrowing owls.

RESPONSE See Sections 4.4.1.4 and 4.5.1.1 for a discussion of potential project related impacts to ferrets and burrowing owls.

ISSUE A Biological Assessment needs to be completed. The EA does not analyze species-specific effects. The level of analysis is insufficient for listed species.

RESPONSE In compliance with the established procedures involving consultation with the U.S. Fish and Wildlife Service, a Biological Assessment for plants and animals has been completed and sent to the FWS along with the edited EA of which Section 4.5 has been revised.

BLM has provided a Biological Assessment to the FWS. FWS has reviewed the BA and responded with a biological opinion concurring with BLM's findings and recommended mitigation for this project.

ISSUE As presented, the draft EA lacks sufficient information to fairly determine a finding of No Significant Impact (FONSI).

RESPONSE Additional information to substantiate a FONSI has been added to key sections of the final EA, including wildlife and threatened, endangered, proposed, candidate, and sensitive plant and animal species.

ISSUE For this project the BLM should make a formal request to the U.S. Fish and Wildlife Service for consultation under Section 7 of the *Endangered Species Act*.

RESPONSE BLM requested a biological opinion from the U.S. Fish and Wildlife Service. The Service has provided its biological opinion (refer to Appendix A). The Service has determined that since no take of any threatened or endangered species is anticipated, formal consultation is not necessary, as such formal consultation has been completed.

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ISSUE Based on the information we have, the U.S. Fish and Wildlife Service does not concur with the BLM's "not likely to adversely affect" determination for the Mexican Spotted Owl, Shrubby Reed-mustard, clay thelopody, and the Uinta Basin hookless cactus.

RESPONSE The Service prepared a memorandum commenting on the draft EA in which they did not concur with some of BLM's findings on threatened and endangered species. Based on the submission of the Service's biological opinion, BLM has responded to the Service's concerns. The Service now concurs with BLM's findings on threatened and endangered species.

ISSUE A 10-ft wide corridor should be inventoried and then cleared for special status plants.

RESPONSE The planned width of disturbance for the project area for use of the truck and buggy mounted drills is 10 ft and the helicopter placed drills is 13 ft. The protocol for surveys of potential habitat for special status plant species is to survey a 50-ft on both sides of the centerline.

ISSUE The document states that if surveys for special status species along each line find the species, avoidance would be made. It should be made clear that this also applies to newly discovered individuals or populations that may be found after the project-wide formal consultation.

RESPONSE Section 2.1.5.9 in the Amended EA has been revised to clarify the concern regarding avoidance of special status species. If new individuals or populations of listed species are found in a line corridor after project wide Section 7 consultation has been completed, the BLM would re-initiate formal consultation with the Service on these sites.

ISSUE The analysis should be revised to show that less than 46% of the combined length of the seismic lines would affect habitat for federally listed plant species.

RESPONSE Plant populations and suitable habitat do not occur on 46% of the combined length of the seismic lines. The initial analysis of the lines evaluated where populations, suitable habitat, and potential habitat for special status plants may occur. The analysis was a tool to identify where surveys for plants may need to be conducted. Through consultation with the U.S. Fish and Wildlife Service and site review of past surveys, soils and geology the areas needing surveys have been modified and are revised in the EA in Section 3.5.1.1.

ISSUE In the soils section of Environmental Consequences, a statement should be added: "In soils, such as shale, that may support certain threatened and endangered plants, reseeding or taking would not occur."

RESPONSE Section 4.5.1.3 of the EA has been revised to protect T&E plant species habitat type areas, such as shales, from competition from seeded species. The occupied habitat for Threatened, Endangered, Candidate and Sensitive plants would be avoided to prevent surface disturbance and the need for rehabilitation procedures. Takings would not occur for T&E species as occupied habitat would not be disturbed.

ISSUE In Environmental Consequences, special status plant species, the discussion should be written into one consistent presentation, rather than in the current disjunctive paragraphs.

RESPONSE The text in Section 4.5.1.3 of the EA has been revised. Affected Environment data has been moved to Section 3.5.1.1.

ISSUE Nearly the entire global distribution of *Glaucocarpunm suffrutescens*, *Schoenrambe argillacea*, *Penstemon grahamnii* and *P. albifuvis* is in the project area. An analysis of the relationships of the project and cumulative impacts on these species is crucial.

RESPONSE The EA has been revised in Section 4.5.1.3 to incorporate the results of Section 7 consultation with the U.S. Fish and Wildlife Service and the BLM's Biological Assessment.

ISSUE The EA needs to identify what the potential impacts to sensitive resources are if an exemption is granted to conduct surveys for sensitive species.

RESPONSE There are no sensitive plant species or suitable habitat in the project areas, therefore surveys are not needed. This is explained in Section 3.5.2.1 of the EA. Impacts to sensitive wildlife species are discussed in 4.5.1.2.

ISSUE Indirect impacts to sensitive resources as a result of subsequent use of geophysical lines by recreational vehicles needs to be analyzed.

RESPONSE Additional analysis has been added to further address this issue. Potential for subsequent use of recreational vehicles on the proposed geophysical lines was discussed throughout the analysis in the draft EA.

ISSUE The proposal to do special status plant and animal surveys only in known occurrence areas during the project would not satisfy regulatory intent.

RESPONSE The EA has been corrected to reflect the fact surveys would be conducted on all potential habitat for the species identified to occur in the proposed project area, and would be done using BLM

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survey protocols. Habitat would be cleared before drilling and associated activities can proceed, or timing restrictions for wildlife would be utilized. Known occurrence sites and mapped habitat would not have seismic activities occurring on them.

ISSUE Habitat fragmentation for special status plant and animal species has not been analyzed.

RESPONSE Section 4.5.1 of the EA has been revised to include analysis of habitat fragmentation on Federally listed plant and wildlife species. Section 4.5.1.2 has been revised for sensitive species. No fragmentation of habitat is anticipated.

ISSUE BLM's post-project monitoring of the September 2001 Veritas 2-D project determined many insignificant impacts occurred, but multiplying these impacts by more the 325 times the size would cause significant impacts to resources including threatened and endangered species and cultural resources.

RESPONSE The EA assumes for analyses purposes that no unauthorized impacts occur because within the project area BLM has no documentation of unauthorized actions regularly occurring within the project area, as it would relate to the proposed action. Therefore in the opinion of BLM there is not a reasonable expectation that unauthorized actions would occur.

ISSUE The EA's statement that the loss of an individual Great Plains rat snake or milk snake would be "negligible" is incorrect. Because of the scarcity of these species the loss of even one could be potentially devastating to the species.

RESPONSE See Section 4.5.1.2 in the amended EA that expands on the ecology of Great Plains rat snakes and milk snakes and discusses potential project related impacts.

ISSUE The EA's mitigation measures for avoiding known populations and known or potential habitat of threatened, endangered, and candidate plant species is insufficient. The source lines must be entirely excluded from known populations and known or potential habitat for these species.

RESPONSE No drilling, shooting, or recording would be allowed among populations or in suitable habitat of populations or habitat for TE&C plant species. Potential habitat areas would be surveyed for populations of TE&C species and/or suitable habitat.

ISSUE The EA must disclose whether BLM has identified known or predicted habitat for all raptor species in the project area.

RESPONSE The amended EA has been expanded in Section 2.1.5.8 and Section 3.4 to more fully address raptor species in the proposed project areas.

ISSUE The EA does not adequately identify all the BLM sensitive plants species that are or may be present in the project area. The following is a comprehensive list, based on UDWR Natural Heritage Program data, Utah State University GAP Data, and pers. com. with experts of species expected to be found within the project area:

- Plants
- Lax stickleaf (Heritage Program)
- Barneby's Catseye (Heritage Program)
- Dinosaur Milkvetch (Heritage Program)
- Dragon Milkvetch (Heritage Program)
- Garrett's Beardtongue (Heritage Program)
- Repand Twinpod (Heritage Program)
- Caepitose Cat's Eye (Heritage Program)

RESPONSE There are no BLM listed sensitive plants occurring, or having suitable or potential habitat in the proposed project area. Appendix C lists the special status plants that occur in the project area based on BLM review. The Appendix C and text in 3.5.2.1 have been revised to expand on those species and why they do not occur in the project area. Lax stickleaf, Barneby's catseye, dinosaur milkvetch, dragon milkvetch , Garrett's beardtongue, Repand twinpod and Caepitose catseye are not Utah BLM sensitive plant species.

ISSUE The EA must also provide a thorough list of citations to studies and reports that BLM specialists have relied upon to evaluate the presence/absence of these species and their habitats.

RESPONSE The Bibliography has been revised to list all the publications used for evaluations of habitat and presence and absence of special status plant and animal species. See Section 9.0, Literature Cited, of the Amended EA. References have been expanded to include these citations.

ISSUE The EA fails to address Executive Order 13186 (Responsibilities of Federal Agencies to Protect Migratory Birds) or disclose whether the proposed action is consistent with this EO's directives.

RESPONSE The amended EA has been expanded in Section 3.4.2 and Section 4.4.1.4 to more fully address migratory bird species as directed by EO 13186 in the proposed project areas.

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## 6.5 NEPA PROCEDURE EIS vs EA ISSUES AND RESPONSES

ISSUE The EA's impacts analysis is too narrow in scope, and to comply with the letter and spirit of NEPA must evaluate *all reasonably foreseeable impacts* from this project, including impacts from exploratory wells and full-field development (e.g., the RDG and Inland projects).

RESPONSE The proposed action would provide information, which would be important to the development of the RDG and Inland projects, however, this proposal as defined in the CEQ's discussion of connected action found in 40 C.F.R. 1508.25 brings out that a decision on one proposal does not automatically trigger a decision on the other. Any of these projects could proceed without the other. They are not interdependent parts of a larger action and they do not depend on each other for their justifications. Therefore, the approval of the proposed geophysical project would not approve drilling or development. A reasonable foreseeable development and cumulative impacts section have been analyzed in Section 5.0 of this EA.

ISSUE Before it considers approving this action, BLM must prepare a programmatic EIS and consider past, ongoing, and future seismic exploration projects and their impacts to the public lands managed by the Vernal, Price, Moab, and Monticello field offices.

RESPONSE The EA for the Proposed Action was prepared in accordance with 40 C.F.R. 1501.3(6) and 1501.4(2)(c), which indicates that an agency may prepare an EA in order to assist agency decision making and to assess whether or not to prepare an environmental impact statement (EIS). Prior to concluding that an EIS is required, the decision maker must consider significance of the impacts, according to 40 C.F.R. 1508.27, and to what extent these impacts can be mitigated (see 40 C.F.R. 1508.20). Seismic projects in Moab, Monticello, and Price Field Offices are beyond the scope of the cumulative impacts relating to the alternatives in this EA are found in Section 5.0 Reasonable Foreseeable Development and Cumulative Impacts.

ISSUE Because of the size and scope an EIS should be written for this project.

RESPONSE The EA for the Proposed Action was prepared in accordance with 40 C.F.R. 1501.3(b) and 1501.4(2)(c), which indicate that an agency may prepare an EA in order to assist agency decision making and to assess whether or not to prepare an environmental impact statement (EIS). However, before concluding that an EIS is required, the decision maker must consider the significance of the impacts according to 40 C.F.R. 1508.27, and to what extent these impacts can be mitigated (see 40 C.F.R. 1508.20).

The size of a project does not necessarily determine the significance of the impact, as in many cases impacts can be partially or completely mitigated by implementing environmental protection measures.

This assessment focuses on geophysical exploration and data collection within the project area. Any subsequent actions proposed by energy companies are not considered a connected action and would need further environmental analysis.

ISSUE The EA does not comply with IB2002-008, which recommends that oil and gas leasing and expedited APD processing is a high priority.

RESPONSE IB UT2002-008 released a draft report of a review of the BLM OilandGas Program in Utah. The final has not been released to the field yet.

## **6.6 NOXIOUS WEEDS ISSUES AND RESPONSES**

ISSUE To mitigate the spread of noxious weeds, seismic vehicles should be power washed after passing through areas with noxious plants to different parts of the project area.

RESPONSE The primary concern for noxious weeds in the proposed project area is the importation of noxious weed species from equipment brought in from outside the county and state that would have passed through high infestation areas near communities in the county. Power washing vehicles and equipment prior to coming on the project area would remove the primary vector of infestation. Currently noxious weed infestations in the project area are low and are found along existing roads, well pads, campsites, and gas pipelines. Areas with native vegetation do not have infestations. Line 13 is the only seismic line that has noxious weeds on or adjacent to the route and access roads. Additional mitigation for this line and road travel has been added to the EA in Section 4.8.

## **6.7 OIL AND GAS ISSUES AND RESPONSES**

ISSUE The combined impacts of all oil and gas leasing and development should be analyzed.

RESPONSE The combined impacts of all oil and gas leasing and development, is not a connected action to the proposed seismic project and is therefore beyond the scope of this EA. The proposed seismic survey is a viability study to determine if oil and gas is present. Once a determination is made, further analysis would occur at that time.

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This assessment focuses on geophysical exploration and data collection within the project area. Any subsequent actions proposed by energy companies are not considered a connected action and would need further environmental analysis. Section 5 sets out the cumulative impacts for the alternatives.

ISSUE The potential for oil spills should be analyzed.

RESPONSE There is a low likelihood of oil spills occurring from the proposed project since vehicles used in the operation would be confined to roads, trails and the surveyed lines. Any spills from vehicles would be negligible. See Section 1.3.2 and Section 5.

ISSUE EA must disclose that if proposed action is approved, that future drilling would be considered "exploratory."

RESPONSE As described in the book, *Hydrocarbon and Mineral Resources of the Uinta Basin*, 1992, seismic surveys used in conjunction with existing well data, are very helpful in predicting where hydrocarbon trapping zones can be found. However, it is acknowledged that using 2-D seismic data does not guarantee the success of all wells drilled, therefore, it can be considered that all oil and gas wells are exploratory in nature.

The scope of the decision is limited to the geophysical project. It is beyond the scope of the document to determine the type and extent of future exploratory and development drilling.

ISSUE EA must explain that based on previous seismic work performed in an area, that fewer unproductive wells or dry holes have been drilled.

RESPONSE The book *Hydrocarbon and Mineral Resources of the Uinta Basin*, 1992, indicates that seismic surveys coupled with existing well data, are very helpful in predicting where hydrocarbon trapping zones are located. See the Purpose and Need section.

## **6.8 RECREATION AND OHV ISSUES AND RESPONSES**

ISSUE The number and location of signs and barriers to prevent OHV use of seismic lines is not discussed.

RESPONSE Please see the newly incorporated insert in the EA for addressing subsequent use of OHVs on Veritas' disturbed areas. The combination of both the number of intersecting points and the dispersed

open vegetation patterns would make it impractical and ineffective to sign for OHV users to remain on existing travel routes or to close them along major access roads.

ISSUE BLM should analyze impacts of increased OHV use of seismic lines on special status species.

RESPONSE The project would contribute to the spread of noxious weeds, due to the disturbance.

ISSUE The EA lacks an adequate map depicting all the "existing" vehicle routes.

RESPONSE Veritas has committed to using existing roads and trails wherever possible. Impact analysis has focused on travel away from existing roads and trails because it is here that the greatest risk to natural and cultural resources are located. Figure 1.1 depicts existing roads. However, it is acknowledged that there are numerous jeep trails and substantially unnoticed two-tracks in the area that have not been mapped.

ISSUE The EA does not disclose whether ATV's would be authorized to travel cross-country to "trouble shoot." If cross-country use is allowed, EA must disclose additional acres disturbed.

RESPONSE ATVs can be used to trouble shoot. An analysis assumption was used that there would be some level of cross-country travel by ATVs in the performance of the seismic work. However, this travel is considered casual use, resulting in minimal, short-term surface impacts.

ISSUE The EA does not disclose if more than one vehicle or ATV would be traveling on source lines. Damage must be assessed.

RESPONSE An analysis assumption was used that vehicles, including ATVs, could be used five times along a line, e.g., to survey and flag the line, to lay recording cables, to assist in setting the charge, to carrying recording devices, and finally to assist in the final clean-up and reclamation of the lines. This reasonable vehicle usage was used during the assessment.

ISSUE EA does not address impacts of foreseeable unauthorized impacts.

RESPONSE The EA assumes for analyses purposes that no unauthorized impacts occur because within the project area BLM has no documentation of unauthorized actions regularly occurring within the project area, as it would relate to the proposed action. Therefore in the opinion of BLM there is not a reasonable expectation that unauthorized actions would occur.

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ISSUE EA fails to address impacts of vehicle travel from one source line to another source line.

RESPONSE Section 2.5.5 of the EA has been amended as follows: ATV use would be restricted to seismic lines and existing roads and trails. There would be no cross-country travel between seismic lines. In WIA's, ATV's would be the only wheeled vehicles used and would be restricted to existing roads and trails.

## **6.9 RESOURCE MANAGEMENT PLAN (RMP) ISSUES AND RESPONSES**

ISSUE The 1984 Book Cliff's RMP, 1993 Diamond Mountain RMP and 1985 Grand RMP and their respective VRM ratings are outdated and do not accurately reflect the visual qualities found in the project area.

RESPONSE In the interim the VRM associated with this project is addressed in Table 3.1. The ongoing planning effort, which the Vernal Field Office is now undertaking, would update the present visual qualities.

## **6.10 VEGETATION ISSUES AND COMMENTS**

ISSUE Impacts to perennial plants and recovery periods for disturbed sites are flawed.

RESPONSE Section 4.2.1 has been expanded to provide more analysis of impacts to perennial plants.

ISSUE The EA only analyzes the short-term effects on vegetations and does not analyze the long-term effects to vegetation structure and soil compaction.

RESPONSE Sections 4.1.1 and 4.2.1 have been expanded to provide more analysis of impacts to vegetation and soils, including soil compaction impacts.

ISSUE BLM does not address type of seeds to be used on seedlings that could lead to genetic contamination of native species.

RESPONSE Seed mixes would be developed for each habitat area. The mixes would contain native grass and shrub species. No species would be used that are of the same genera as the special status species that occur in the area. Seeding in low productivity areas such as shale barrens would also not be done. This measure is to protect genetic integrity of TES species and Uintah endemics.

ISSUE BLM does not address how rare plant surveys would be conducted in a drought year.

RESPONSE Surveys for TES plants this year are only possible for *Sclerocactus glaucus*. The remaining TES plants are dormant. Survey of required habitats have been identified in the EA consultation with the U.S. Fish and Wildlife Service. Surveys for suitable habitat can be conducted this fall. No seismic operation would occur within suitable habitat or among plant populations. Protocols for plant surveys and seasons are in Sections 4.5.1.3 and 4.5.3.

## **6.11 WETLANDS, FLOODPLAINS, STREAMS ISSUES AND RESPONSES**

ISSUE The EA states no shot-holes would be drilled in flood plains, but fails to identify the floodplain locations

RESPONSE For the purposes of this analysis, floodplains are identified as 100-year floodplains. The 100 year floodplains in the project area are the floodplains within the Green River, White River, Willow Creek, Bitter Creek, Evacuation Creek, Coyote Wash, Red Wash, and Kennedy Wash.

ISSUE The EA fails to prohibit shot-holes from being drilled in streams and ephemeral wetlands, and does not identify these areas.

RESPONSE Section 2.1.5.7, Applicant-committed Environmental Protection Measures states no drilling or shooting would occur within 500 ft of any flowing stream. For the purposes of this analysis, the flowing streams in the project area are Sweetwater Creek, Bitter Creek, Evacuation Creek, Coyote Wash, Green River, White River and Willow Creek. There are no BLM designated ephemeral wetlands in the project area.

ISSUE The EA identifies both 300 ft and 100 ft as distances to avoid wetland/riparian areas. Without this information specifically identified, it is questionable that the project would have "negligible" impacts to reptiles and amphibians.

RESPONSE Table 3.1 references the Applicant-committed Environmental Protection Measures for wetland and riparian (see Section 2.1.5.7). These measures would, in all likelihood, result in minimal risk to amphibians and reptiles. Section 4.5.1.2 has been amended to provide further discussion on amphibians and reptiles.

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ISSUE EA fails to address soil rutting in excess of 12 inches. Recent seismic experiences in Moab, Utah, have documented that deep ruts do occur.

RESPONSE Section 4.1.1 has been expanded to include analysis of impacts from soil rutting.

ISSUE The EA does not indicate if the BLM has complied with the terms of U.S. Army Corps of Engineers Nationwide Permit #6 (Survey activities, including seismic exploratory activities) and the pertinent permit conditions. The streams, seeps and springs, and wetlands in the project area constitute "waters of the United States" and therefore compliance with this particular permit and its conditions is mandatory (including siltation and erosion controls; historic properties surveys, and notification of the Army Corps of Engineer district engineer). See 33 C.F.R. Part 330.

RESPONSE The proposed action does not allow drilling or shooting within 500 ft of springs and 300 ft of wetlands, therefore, consultation is not required.

## **6.12 WILD AND SCENIC RIVERS ISSUES AND RESPONSES**

ISSUE The project would degrade wild and scenic river status on the Green and White Rivers because drilling rigs would be visible to river users, which could adversely influence their inclusion as Wild and Scenic Rivers.

RESPONSE The White River has been determined eligible for further study into the Wild and Scenic Rivers System but has not yet been determined suitable through a public process. The proposed action would have a temporary visual intrusion of the (approximately 10 ft tall) drilling rig, vehicle tracks and soil spoils from some of the core holes. However, the actions would not eliminate or diminish the values of any of the river segments from further consideration into either the wild, scenic or recreational classifications of the system. No drilling or shooting activity would occur within 500 ft of the White or Green Rivers (Veritas EA Sec 2.1.5.7).

## **6.13 WILDERNESS ISSUES AND RESPONSES**

ISSUE SUWA has provided the BLM with new and supplemental information regarding the White River proposed wilderness unit, Bitter Creek proposed wilderness unit, Lower Bitter Creek wilderness Unit, Sweet Water Canyon proposed wilderness unit, Dragon Canyon proposed wilderness unit, Sunday School Canyon proposed wilderness unit, Cliff Dweller proposed wilderness unit, and Seep Canyon proposed wilderness unit that triggers the BLM's non-discretionary duty under 40 C.F.R. 1502.9 to take a

"hard look" at whether the Book Cliffs, Diamond Mountain, and Grand RMP's land use classifications for the project area are accurate. See *Southern Utah Wilderness Alliance et al. v. Norton et al.*, (Case No. 01-4009) (August 29, 2002).

**RESPONSE** BLM Handbook H-6310-1 (Wilderness Inventory and Study Procedures) explains that managers should review any such information and documentation submitted as soon as practicable and shall field check the information as appropriate. After such review and field checking, the BLM should make a preliminary determination whether the conclusion reached in previous BLM inventories remains valid, or whether there is a reasonable probability that the area in question may have wilderness characteristics.

Those areas submitted by SUWA that have been determined, by the BLM, to have a reasonable probability of possessing wilderness characteristics are analyzed in this EA and would be brought forward for analysis and possible designation as WSAs in the ongoing Vernal RMP revision. This action would not preclude their consideration as WSAs in the RMP revision.

The results of BLM's reasonable probability determinations are as follows:

- **White River:** Part of unit has a reasonable probability of having wilderness characteristics.
- **Bitter Creek:** Part of unit has a reasonable probability of having wilderness characteristics.
- **Lower Bitter Creek:** Part of unit has a reasonable probability of having wilderness characteristics.
- **Sweet Water Canyon:** Entire unit has a reasonable probability of having wilderness characteristics. Sweet Water Canyon, however, is no longer affected by this action.
- **Dragon Canyon:** The unit does not have a reasonable probability of having wilderness characteristics, and was dropped from further consideration.
- **Sunday School Canyon:** The unit does not have a reasonable probability of having wilderness characteristics, and was dropped from further consideration.
- **Cliff Dweller Canyon:** The unit does not have a reasonable probability of having wilderness characteristics, and was dropped from further consideration.
- **Seep Canyon:** The unit does not have a reasonable probability of having wilderness characteristics, and was dropped from further consideration.

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The information submitted about proposed wilderness units in SUWAs comment letter does not require additional analysis in the final EA.

ISSUE Those areas found not to have wilderness characteristics when inventoried by BLM under Section 603 of FLPMA should not be discussed in the section on wilderness.

RESPONSE BLM Handbook H-6310-1 (Wilderness Inventory and Study Procedures) explains that BLM may, from time to time, receive requests from the public suggesting that existing land use plans do not adequately identify public lands that have wilderness characteristics. Managers should review any such information and documentation submitted as soon as practicable and shall field check the information as appropriate. After such review and field checking, the BLM should make a preliminary determination whether the conclusion reached in previous BLM inventories remains valid, or whether there is a reasonable probability that the area in question may have wilderness characteristics.

When an action is proposed in an area that BLM determines may have wilderness characteristics, BLM should prepare a NEPA document for the proposed action to analyze the effects of the action on the potential wilderness characteristics. That NEPA document should consider available new information on wilderness characteristics.

ISSUE An inventory needs to be made of lands proposed for wilderness before the Veritas project is approved.

RESPONSE BLM Handbook H-6310-1 (Wilderness Inventory and Study Procedures) explains that managers should review any such information and documentation submitted as soon as practicable and shall field check the information as appropriate. After such review and field checking, the BLM should make a preliminary determination whether the conclusion reached in previous BLM inventories remains valid, or whether there is a reasonable probability that the area in question may have wilderness characteristics.

Where the NEPA analysis shows that a proposed action would not disqualify the area from further consideration as a WSA, BLM may approve the action, and further wilderness inventory would not be required.

## **6.14 WILDLIFE ISSUES AND RESPONSES**

ISSUE Noise impacts to wildlife are not analyzed.

RESPONSE See Section 4.4.1 for a discussion on noise related impacts to wildlife.

ISSUE Raptor surveys need to be conducted before seismic exploration would begin.

RESPONSE Raptor surveys would be conducted prior to any seismic exploration on proposed lines with known nests and suspected habitat (e.g., cliff faces, rocky outcrops, and trees on edge of juniper habitat), see Sections 2.1.5.8 and 3.4.

ISSUE An alternative should be considered that avoids areas with wilderness characteristics, critical deer winter range and other sensitive habitat.

RESPONSE Section 2.2 Alternatives Considered but not Analyzed provides the rationale for alternatives that were considered but dismissed. Alternatives that would result in unacceptably large voids in data collection would not meet the purpose and need for the project, and therefore, were considered unreasonable.

ISSUE The discussion of effects to migratory birds is incomplete.

RESPONSE The amended EA has been expanded in Sections 3.4.2 and 4.4.1.4 to more fully address migratory bird species in the proposed project areas.

ISSUE Uintah County Fig 4.1 depicts boundaries for elk and mule deer crucial winter range that are not consistent with the 1985 Book Cliffs RMP. The boundaries should conform to the 1985 RMP and any restrictions on activities should be limited to the 1985 boundaries.

RESPONSE In the preparation of this document best available data was used in the analysis of the project, which is Utah Division of Wildlife Resources species delineation. Timing restrictions are still subject to 1985 Book Cliffs RMP.

ISSUE The EA should contain a stronger analysis on cumulative impacts for vegetation and wildlife.

RESPONSE Analysis for impacts including cumulative impacts have been expanded in Sections 4.2.1 and 4.4.1.

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ISSUE Effects to black bear need to be added to the wildlife analysis.

RESPONSE The amended EA has been expanded in Section 4.4.1.2 to address potential impacts to black bears in the proposed project areas.

ISSUE Site-specific dates of seismic activity must be correlated with seasonal wildlife closures.

RESPONSE Section 2.1.5.8 specifies when seasonal closures are in effect. Due to the scope of the project and potential delays it is impossible to predict the exact dates of seismic activity at certain locations.

ISSUE EA fails to use most current UDWR critical data for mule deer, elk, black bear, Rocky Mountain bighorn sheep and pronghorn antelope.

RESPONSE In the preparation of this document best available data was used in the analysis of the project, which is Utah Division of Wildlife Resources species delineation. Timing restrictions are still subject to 1985 Book Cliffs RMP.

ISSUE Documentation must be furnished for the statement: "small, less mobile animals" have "high reproductive rates," impacts would be insignificant.

RESPONSE The amended EA has been expanded in Section 4.4.1 to more fully address these mammal species ("such as mice and voles").

## **6.15 MISCELLANEOUS ISSUES AND RESPONSES**

ISSUE Existing seismic data should be used to reduce the scope of the project.

RESPONSE Existing seismic data, which is available in the area is spotty at best and the information is antiquated. The older vintage two-dimensional seismic data available in the Uinta Basin is outdated and antiquated and is not useable with today's technology thus reducing the risk of drilling non-producing wells.

ISSUE The EA has no discussion of how this project complies with the BLM Resource Management Plan.

RESPONSE A plan conformance statement for the Resource Management Plan can be found in Section 1.2.

ISSUE A statement of Adverse Energy Impact must be made.

RESPONSE The BLM would be required to prepare a Statement of Adverse Energy Impact only if the decision is to deny the proposed action. If appropriate, a Statement of Adverse Energy Impact would be filed following the final decision.

ISSUE Mitigation measures should require restoration of ecological relationships (e.g., soils to wildlife).

RESPONSE The objective of mitigation is to maintain ecological processes, i.e., the site specific reseeded of native species that match the habitat where they grow.

ISSUE The cumulative impact section merely provides a listing of expected impacts, but does not provide analysis.

RESPONSE Section 5.0 Reasonable Foreseeable Development and Cumulative Impacts, provides projections of expected impacts from reasonably foreseeable development including the proposed action. Cumulative impact analysis relative to the proposed action and no action alternatives has been added to Section 4.0 Environmental Consequences.

ISSUE The RDG and Inland Oil and Gas field development projects are similar actions in time, space, and type of action but are not mentioned in the cumulative impact analysis.

RESPONSE The RDG & Inland Oil and Gas field development projects are not similar in space and type of action because the Veritas proposal is a temporary action to determine oil and gas availability in the area.

Cumulative impacts have not been identified between projected oil and gas development and the current proposed Veritas proposal.

ISSUE EA must identify previous seismic exploration activities that have taken place in the project area (i.e., names, dates, previous lessees, and previous contractors).

RESPONSE The EA analyzes the impacts of the proposed action and connected actions. Previous seismic exploration activities, which have occurred in the area, are not considered connected actions. However, the analysis of cumulative impacts in the EA takes past, present, and reasonably foreseeable actions into account.

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ISSUE EA did not identify how many helicopters would be used and what vectors they would fly over.

RESPONSE Section 2.1.3 states that, "Five heli-portable drilling crews" would be used indicating that five helicopters would be used. What vectors they would fly over is impossible to state at this point since specific staging areas have not been identified (see page 11 paragraph 2).

ISSUE The statement (page 46) that "colored lichens would be avoided" is unenforceable and does not provide the standards how BLM proposes to protect these lichens.

RESPONSE The statement has been deleted from the EA. Impacts to lichens are assessed in Section 4.1.1.

ISSUE The EA states damage to vegetation from seismic buggies would be minimal. EA should state damage to vegetation would take from 1 to 3 years to naturalize.

RESPONSE Section 4.2.1 has been expanded to more thoroughly analyze potential impacts to vegetation.

ISSUE The EA's cumulative impact analysis must identify all additional ongoing or proposed seismic projects in the Vernal, Moab, Monticello, and Price field offices.

RESPONSE Seismic projects in Moab, Monticello, and Price Field Offices are beyond the scope of the cumulative impacts relating to the alternatives in this EA are found in Section 5.0 Reasonable Foreseeable Development and Cumulative Impacts.

ISSUE The EA's cumulative impacts analysis does not adequately disclose the project's long-term impacts.

RESPONSE Section 4.0 Environmental Consequences, has been edited to deal with long-term impacts.

ISSUE The EA should evaluate and disclose connected actions to the proposed action.

RESPONSE All of the Connected Actions within the Proposed Action are described in Section 2.1 The Proposed Action. The evaluation of the effects from the Proposed Action, that includes all of the elements of the Connected Actions, is to be found in Section 4.0 Environmental Consequences.

ISSUE With the completion of the seismic project, there would be less wildcat wells drilled resulting in less surface disturbance.

RESPONSE Section 1.1 Purpose and Need explains that the seismic project would determine the potential for the occurrence of oil and gas resources in order to drill wells in areas where there is a higher probability of finding commercial quantities of hydrocarbons. If very little potential was found little exploratory drilling would occur. If the results of the seismic survey indicated high potential for oil and gas occurrence more exploratory drilling would occur.

ISSUE Seismic activities are defined by BLM as "casual use." Therefore the level of intense analysis in the EA is not necessary.

RESPONSE 43C.F.R. 3150.0-5(b) defines casual use for geophysical exploration as "activities that involve practices which do not ordinarily lead to any appreciable disturbance or damage to lands, resources and improvements. For example, activities which do not involve use of heavy equipment or explosives and which do not involve vehicular movement except over established roads and trails are casual use." The proposed action states that cross-country movement would occur; therefore, the level of analysis in the EA is appropriate.

ISSUE In accordance with the National Energy Policy and Executive Order 13211, what is the adverse energy impact?

RESPONSE In accordance with E.O. 13211 and guidance developed for implementation, agencies are obligated to prepare a Statement of Adverse Energy Impact after the decision is finalized. If appropriate, a statement would be prepared after the Decision Record is signed.

ISSUE Potential effects of increased sedimentation are not analyzed.

RESPONSE Section 4.1.1 has been expanded to include additional analysis on soil erosion/sedimentation affects.

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**7.0 LIST OF PREPARERS**


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Organization	Individual	Responsibility
TRC Mariah Associates Inc. Laramie, Wyoming	Roger Schoumacher	EA Preparation
TRC Mariah Associates Inc. Salt Lake City, Utah	Craig Smith and Lance McNees	Cultural Resources
TRC Mariah Associates Inc. Laramie, Wyoming	Karyn Coppinger	Paleontology
TRC Mariah Associates Inc. Laramie, Wyoming	Suzanne Luhr	Cartography
TRC Mariah Associates Inc. Laramie, Wyoming	Genial DeCastro	Document Production
BLM, Vernal Field Office	Duane DePaepe	NEPA compliance
BLM, Vernal Field Office	Jean Nitschke-Sinclear	Resource impacts
BLM, Vernal Field Office	Dave Moore	Wilderness
BLM, Vernal Field Office	Kim Bartel	Recreation
BLM, Vernal Field Office	Tim Faircloth	T&E animals
BLM, Vernal Field Office	Mary Hammer	Wildlife resources
BLM, Vernal Field Office	Robert Specht	T&E plants; vegetation
BLM, Vernal Field Office	Blaine Phillips	Cultural resources
BLM, Vernal Field Office	Steve Strong	Range management; soils
BLM, Vernal Field Office	Byron Tolman	Minerals

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**8.0 AGENCIES AND INDIVIDUALS CONSULTED**


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Agency	Individual	Subject of Consultation
Utah Department of Natural Resources, Utah Natural Heritage Program, Salt Lake City, Utah	Anne Axel, Information Manager	Sensitive wildlife species
Utah Department of Natural Resources, Division of Wildlife Resources, Vernal, Utah	Jack Lytle, Wildlife Biologist	Wildlife resources
	Natalie Gale, Wildlife Biologist	Wildlife resources
Ute Indian Tribe Fort Duchesne, Utah	Ferron Secakuku	Tribal coordination
Bureau of Indian Affairs, Uintah and Ouray Agency, Fort Duchesne, Utah	Charlie Cameron	NEPA coordination
U.S. Fish and Wildlife Service	Laura Romin	T&E species
C.W. Bradley Safety Consultants, Wilburton, Oklahoma	C.W. Bradley	Impacts of explosives
Southern Utah Wilderness Alliance, Moab, Utah	Herb McHarg	Wilderness
Natural Resources Conservation Service, Roosevelt, Utah	Robert Fish	Cryptobiotic soils
BLM, Moab Field Office	Lynn Jackson	Science Advisor
BLM, Moab Field Office	Rob Sweeten	Landscape architect
U.S. Geological Survey Moab, Utah	Jayne Belnap	Biological Soil Crusts

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**APPENDIX A:**  
**BIOLOGICAL OPINION**

**APPENDIX B:**

LISTS OF THREATENED, ENDANGERED, PROPOSED, CANDIDATE,  
AND SENSITIVE PLANT AND ANIMAL SPECIES FROM USFWS  
AND UTAH DIVISION OF WILDLIFE RESOURCES

The following list of federally listed and proposed, endangered, threatened and candidate species and habitat in Utah by county was provided by the U.S. Fish and Wildlife Service, Utah Field Office, West Valley City, Utah. Please refer to the list for Uintah County. Following the federal list is information regarding species of special concern supplied by the Utah Division of Wildlife Resources and a copy of BLM Instruction Memorandum No. UT 2001-081, *Utah BLM State Sensitive Plant and Animal Species List*.

**APPENDIX C:**

**SPECIAL STATUS PLANTS: POTENTIAL HABITAT AND OCCURRENCES  
ALONG VERITAS' PROPOSED SEISMIC LINES**

**Special Status Plants  
Potential Habitat and Occurrences  
Veritas Land Surveys  
Uinta Nonexclusive 2-D Survey EA**

Special Status Plants that occur in the proposed survey area.

<i>Penstemon grahamii</i> Graham or Uinta Basin penstemon	Candidate	East Duchesne and Uintah Counties. Shaley knolls in sparsely vegetated desert shrub and pinyon-juniper communities. 4,600-6,700 ft
<i>Penstemon scariosus</i> var. <i>albifluvis</i> White River penstemon	Candidate	Upper Green River Formation on sparsely vegetated shale slopes in mixed desert shrub and pinyon-juniper communities. 5,000-6,000ft
<i>Schoenrambe argillacea</i> Clay thelopody	Threatened	Bookcliffs on Uinta and upper Green River shale formations in mixed desert shrub of Indian ricegrass and pygmy sagebrush. 5,000-5,650 ft
<i>Schoenrambe suffrutescens</i> Shrubby reed-mustard	Endangered	Upper Green River Shale Formation of calcareous shales in pygmy sagebrush, mountain mahogany, juniper and mixed desert shrub communities. 5,400-6,000 ft
<i>Sclerocactus glaucus</i> ( <i>Sclerocactus brevispinus</i> )	Threatened	Gravelly hills and terraces on Quaternary and tertiary alluvium soils in cold desert shrub communities. 4,700-6,000 ft

**LINE UU-01**

T12S, R19E

Section 24: Potential habitat for *Schoenrambe suffrutescens* and *Penstemon grahamii*.

T12S, R20E

Section 20: Line goes through population of *Schoenrambe suffrutescens*.

Sections 19, 21, 22, 23: Potential habitat for *Schoenrambe suffrutescens*.

Section 24: Potential habitat for *Schoenrambe argillacea* and *Schoenrambe suffrutescens*

T12S, R21E

Sections 19,20,21 and SW22: potential habitat for *Schoenrambe suffrutescens* and *Penstemon grahamii*

Sections 22, 23 and 24: potential habitat for *Penstemon grahamii*

T12S, R22E

Sections 19, 22, 23, 24: No suitable habitat for Special Status plants.

Sections 20, 21: Population of *Penstemon grahamii* on line in Section 21, rest is potential habitat for *Penstemon grahamii*.

T12S, R24E

Sections 19, 20, 21, 22, 23, 24, 25, 26: Population of *Penstemon grahamii* on line in Section 22, the rest is potential habitat for *Penstemon grahamii*. Populations occur in Sections 19 and 20.

T12S, R25E

Sections 22, 23, 24, 25, 26, 27: No suitable habitat for Special Status plants.

Sections 19, 20, 21, 28, 29, 30: Potential habitat for *Penstemon grahamii*.

**LINE UU-02**

T8S, R25E

Sections 13, 14, 22, 27, 28, 32, 33: No suitable habitat for Special Status plants

T9S, 25E

Section 6: No suitable habitat for Special Status plants

T9S, R24E

Sections 1, 11, 12, 14, 15, 21, 22, 28, 29, 32: No suitable habitat for Special Status plants

Section 31 S1/2: Potential habitat for *Sclerocactus glaucus*

T10S, R22E

Section 36: Potential habitat for *Sclerocactus glaucus*

T10S, R23E

Sections 1, 11, 12, 15, 29, 30, 31: Potential habitat for *Sclerocactus glaucus*

Section 20 and 21: Potential habitat for *Sclerocactus glaucus*, populations and potential habitat for *Penstemon scariosus* var. *albifluvis*.

T11S, R22E

Sections 1,10, 11, 12, 15, 16, 20, 29: No suitable habitat for Special Status plants.

Sections 30, 31: Potential habitat for *Penstemon grahamii* in SE1/4 of Section 30 and all Section 31

T12S, R20E

Section 35: Potential habitat for *Schoenrambe suffrutescens* and *Penstemon grahamii*

T12S, R21E

Sections 19, 20, 30: Potential habitat for *Schoenrambe suffrutescens* and *Penstemon grahamii*

Section 1 E1/2: Potential habitat for *Penstemon grahamii*

Sections 2, 10, 11, 12,15, 16, 21, and W1/2 of 1: No suitable habitat for Special Status plants.

T13S, R20E

Sections 2, 3, 9, 10, 16, 17: Potential habitat for *Schoenrambe suffrutescens* and *Penstemon grahamii*.  
Populations in 16.

**LINE UU-03**

T9S, R25E

Sections 22, 23, 27, 28, 32: Potential habitat for *Penstemon scariosus* var. *albifluvis*.

T10S, R24E

Sections 1, 12: Potential habitat for *Penstemon scariosus* var. *albifluvis*.

Sections 14, 21, 22, 28, 29, 31, 32: Potential habitat for *Sclerocactus glaucus*

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T10S, R25E

Section 6: Potential habitat for *Penstemon scariosus* var. *albifluvis*.

T11S, R23E

Sections 1, 11, 12, 14, 15, 21, 22, 28, 29, 31, 32: No suitable habitat for Special Status plants.

T11S, R24E

Section 6: No suitable habitat for Special Status plants.

T12S, R21E

Section 35: Potential habitat for *Penstemon grahamii*

T12S, R22E

Sections 10, 11, 15, 16, 20, 21, 29, 30: Potential habitat for *Penstemon grahamii*

Sections 1, 2: No suitable habitat for Special Status plants.

T13S, R21E

Sections 9, 10, 16, 17, 19, 20: No suitable habitat for Special Status plants.

Sections 2, 3: Potential habitat for *Penstemon grahamii*.

T13S, R20E

Sections 24, 25: No suitable habitat for Special Status plants.

#### **LINE UU-04**

T12S, R20E

Sections 7, 17, 18, 20, 28, 29, 33, 34: Line goes through population of *Schoenrambe suffrutescens* in Section 20 and adjacent to populations in Section 18. Rest is potential habitat for *Schoenrambe suffrutescens* and *Penstemon grahamii*.

T13S, R20E

Sections 2, 3, 11, 12, 13, 24: Potential habitat for *Schoenrambe suffrutescens* and *Penstemon grahamii*.

T13S, R21E

Sections 19, 29, 30, 32, 33: No suitable habitat for Special Status plants.

T14S, R21E

Section 4: No suitable habitat for Special Status plants.

#### **LINE UU-05**

T9S, R19E

Section 29, 29, 33: Potential habitat for *Sclerocactus glaucus*. Populations in Section 33.

T10S, R19E

Sections 3, 4, 10, 11, 14, 24, 25: Potential habitat for *Sclerocactus glaucus*.

T10S, R20E

Section 30, 31: Potential habitat for *Sclerocactus glaucus*.

T11S, R20E

Sections 4, 5, 9, 10, 23, 25, 26, 36: Potential habitat for *Schoenrambe argillacea* and *Schoenrambe suffrutescens*. Populations of *Schoenrambe argillacea* in Sections 3 and 26.

T12S, R21E

Sections 16, 17, N1/2 6, S1/2 8: No suitable habitat for Special Status plants.

Sections 7, 21, 27, 34, 35, N1/2 8, S1/2 6: Potential habitat for *Penstemon grahamii*, *Schoenrambe argillacea* and *Schoenrambe suffrutescens*.

T13S, R21E

Sections 1, 2 12: Potential habitat for *Penstemon grahamii*.

T13S, R22E

Section 18: Potential habitat for *Penstemon grahamii*

#### **LINE UU-06**

T10S, R20E

Sections 14, 23, 24, 25: No suitable habitat for Special Status plants.

T11S, R21E

Sections 4, 5, 9, 10, 15, 23, 24, 25: No suitable habitat for Special Status plants.

Section 36: Potential habitat for *Penstemon grahamii*.

T12S, R22E

Sections 6, 7, 8, 16, 17, 21, 27, 34, 35: Potential habitat for *Penstemon grahamii*

T13S, R22E

Sections 1, 2, 12: Potential habitat for *Penstemon grahamii*. Populations in Section 2.

T13S, R23E

Sections 18, 19, 20, 28, 29, 33, 34: Potential habitat for *Penstemon grahamii*

T14S, R23E

Section 3 N1/2: Potential habitat for *Penstemon grahamii*

Sections 10, 11, 13, 14, 24, and S1/2 3: No suitable habitat for Special Status plants.

T14S, R24E

Sections 19, 30, 31, 32: No suitable habitat for Special Status plants.

T15S, R24E

Sections 4, 5, 9, 10, 15, 23, 25, 26, 36: No suitable habitat for Special Status plants.

T15 1/2S, R25E

Section 33: No suitable habitat for Special Status plants.

T16S, R25E

Sections 2, 3, 10, 11, 14, 25, 25: No suitable habitat for Special Status plants.

T16S, R26E

Sections 30, 31, 32: No suitable habitat for Special Status plants.

T17S, R26E

Sections 5, 6, 8: No suitable habitat for Special Status plants.

#### **LINE UU-07**

T10S, R21E

Sections 4, 5, 9, 15, 16, 22, 23, 26, 35: No suitable habitat for Special Status plants.

T11S, R22E

Sections 5, 6, 8, 16, 21, 22, 27: No suitable habitat for Special Status plants.

Section 35: Potential habitat for *Penstemon grahamii*.

T12S, R22E

Sections 1, 2, 12: No suitable habitat for Special Status plants.

T13S, R23E

Sections 3, 4, 10, 11, 13, 23, 24, 25: Potential habitat for *Penstemon grahamii* and *Penstemon scariosus* var. *albifluvis*. *Penstemon scariosus* var. *albifluvis* populations in 2 and 15.

T14S, R24E

Sections 30, 31, 32: No suitable habitat for Special Status plants.

T14S, R24E

Sections 5, 8, 9: No suitable habitat for Special Status plants.

#### **LINE UU-08**

T9S, R23E

Sections 1, 2, 12, 13, 24: No suitable habitat for Special Status plants.

T9S, R24E

Sections 30, and N1/2 31: No suitable habitat for Special Status plants.

Section 31 S1/2: Potential habitat for *Sclerocactus glaucus*

T10S, R24E

Sections 6, 7, 8, 17, 20, 29, 32, S1/2 33: Potential habitat for *Sclerocactus glaucus*.

Section 31 N1/2: No suitable habitat for Special Status plants.

T11S, R24E

Sections 3, 10, 15, 23: No suitable habitat for Special Status plants.

Sections 26, 35: Potential habitat for *Penstemon grahamii*

T12S, R24E

Sections 1, 2, 12, 13, 24, 25: Potential habitat for *Penstemon grahamii*.

T12S, R25E

Section 30: Potential habitat for *Penstemon grahamii*

Section 31: No suitable habitat for Special Status plants.

T13S, R25E

Sections 17, 20, 29, 32, 33: No suitable habitat for Special Status plants.

T14S, R25E

Sections 4, 9: No suitable habitat for Special Status plants.

#### **LINE UU-09**

T9S, R23E

Sections 4, 9, 16, 21, N3/4 28: No suitable habitat for Special Status plants.

Sections 33, S1/4 28: Potential habitat for *Sclerocactus glaucus*.

T10S, R23E

Sections 4, 9, 16, 21, 28, 33: Potential habitat for *Sclerocactus glaucus*.

T11S, R23E

Sections 3, 4, 9, 10 15, 16,21, 22, 27, 28, 34, 35: No suitable habitat for Special Status plants.

T12S, R23E

Sections 3, 4, 9, 10, 15, 16: No suitable habitat for Special Status plants.

#### **LINE UU-10**

T9S, R22E

Sections 16, 21, 22: No suitable habitat for Special Status plants.

Sections 25, 26, 36: Potential habitat for *Sclerocactus glaucus*.

T9S, R23E

Sections 31, 32: Potential habitat for *Sclerocactus glaucus*.

T10S, R23E

Sections 4, 5, 10, 11, 13, 14: Potential habitat for *Sclerocactus glaucus*.

Sections 13, 14: Potential habitat for *Penstemon scariosus* var. *albifluvis* along river breaks.

T10S, R24E

Sections 18, 19, 20, 27, 28, 34, 35: Potential habitat for *Sclerocactus glaucus*.

Section 20: Potential habitat for *Penstemon scariosus* var. *albifluvis*..

T11S, R25E

Sections 5, 6, 9: Potential habitat for *Penstemon scariosus* var. *albifluvis*..

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**LINE UU-11**

T8S, R22E

Section 34: No suitable habitat for Special Status plants.

T9S, R22E

Sections 1, 2, 3: No suitable habitat for Special Status plants.

T9S, R23E

Sections 7, 8, 9, 14, 15, 16, 23, 24: No suitable habitat for Special Status plants.

T9S, R24E

Section 36: Potential habitat for *Penstemon scariosus* var. *albifluvis*.

T10S, R23E

Section 1: Potential habitat for *Penstemon scariosus* var. *albifluvis*.

T10S, R25E

Sections 4, 5, 6, 9: Potential habitat for *Penstemon scariosus* var. *albifluvis*.**LINE UU-12**

T9S, R25E

Sections 7, 8, 9: No suitable habitat for Special Status plants.

T9S, R24E

Sections 7, 8, 9, 10, 11, 12: No suitable habitat for Special Status plants.

T9S, R23E

Sections 6, 7, 8, 9, 10, 11, 12: No suitable habitat for Special Status plants.

T9S, R22E

Sections 1, 2, 3: No suitable habitat for Special Status plants.

**LINE UU-13**

T7S, R24E

Sections 29, 31, 32: No suitable habitat for Special Status plants.

T8S, R24E

Sections 6, 7: No suitable habitat for Special Status plants.

T8S, R23E

Sections 12, 13, 23, 24, 34, 35: No suitable habitat for Special Status plants.

T9S, R23E

Sections 31, 32, and S1/4 29: Potential habitat for *Sclerocactus glaucus*.

Sections 3, 9, 10, 16, 20, 21 N3/4 29: No suitable habitat for Special Status plants.

T10S, R23E

Sections 6, 7: Potential habitat for *Sclerocactus glaucus*.

T10S, R22E

Sections 12, 13, 23, 24, 34, 35: Potential habitat for *Sclerocactus glaucus*.

**LINE UU-14**

T7S, R22E

Sections 13, 23, 24, 26, 35: No suitable habitat for Special Status plants.

T8S, R22E

Sections 2, 11, 14, 23, 26, 27, 34: No suitable habitat for Special Status plants.

T9S, R22E

Sections 2, 10, 15, 22: No suitable habitat for Special Status plants.

Sections 27, 33, 34: Potential habitat for *Sclerocactus glaucus*.

T10S, R22E

Sections 4, 9, 16, 21, 28, 33: Potential habitat for *Sclerocactus glaucus*.

T11S, R22E

Section 4 N1/2: Potential habitat for *Sclerocactus glaucus*.

Sections 9, 16, 21, 28, and S1/2 4: No suitable habitat for Special Status plants.

**LINE UU-15**

T9S, R21E

Sections 25, 26, 35: No suitable habitat for Special Status plants.

T10S, R21E

Sections 3, 10, 11, 16, 20, 30: No suitable habitat for Special Status plants.

T11S, R20E

Sections 1, most of 12: No suitable habitat for Special Status plants.

Sections 14, 22, 23, 27, 33, and portion in SW of 12: Potential habitat for *Schoenrambe argillacea* and *Schoenrambe suffrutescens*. Populations in 23.

T11S, R21E

Section 6: No suitable habitat for Special Status plants.

T12S, R20E

Sections 4, 5, 7, 8, 18, 19: *Schoenrambe argillacea* and *Schoenrambe suffrutescens*. Line goes through populations in Section 7 and 18.

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**LINE UU-16**

T10S, R19E

Sections 24, 25, 35, 36: Potential habitat for *Sclerocactus glaucus*, *Penstemon grahamii*, *Schoenrambe argillacea* and *Schoenrambe suffrutescens*.

T10S, R20E

Sections 4, 5, 8, 18, 19: Potential habitat for *Sclerocactus glaucus*.

T11S, R19E

Sections 28, 29: Potential habitat for *Penstemon grahamii*, *Schoenrambe argillacea* and *Schoenrambe suffrutescens*.

Sections 21, 32: Potential habitat for *Schoenrambe argillacea* and *Schoenrambe suffrutescens*.

Sections 2, 11, 10, 15, 21: Potential habitat for *Sclerocactus glaucus*.

T12S, R18E

Sections 12, 13: *Penstemon grahamii*, *Schoenrambe argillacea* and *Schoenrambe suffrutescens*.

T12S, R19E

Sections 6, 7: *Penstemon grahamii*, *Schoenrambe argillacea* and *Schoenrambe suffrutescens*.

**LINE UU-17**

T11S, R21E

Sections 20, 21, 22, 23, 24: No suitable habitat for Special Status plants.

Section 19: *Penstemon grahamii*, *Schoenrambe argillacea* and *Schoenrambe suffrutescens* populations in Section.

T11S, R22E

Sections 19, 20, 21, 22, 23, 24: No suitable habitat for Special Status plants.

